Support Document
(April 15, 2004)

For Air Operating Permit 000295-0

Issued to
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TABLE OF CONTENTS

1.INTRODUCTION AND STATEMENT OF BASIS

This Air Operating Permit was developed for Intalco Aluminum Corporation (Intalco), a primary aluminum smelter, located near Ferndale, WA.

This Support Document (SD) was developed by the Department of Ecology to provide a discussion of the legal and factual basis for the conditions in Intalco's draft AOP including references to the applicable statutory or regulatory provisions.

The SD fulfills the requirement for a Statement of Basis (SOB) required in WAC 173-401--700(8). The SD is not considered to be part of Intalco's AOP. Nothing in the SD is enforceable against Intalco, unless otherwise made enforceable by a permit or an order.

2. FACILITY AND PROCESS DESCRIPTIONS

Intalco is limited to producing 307,000 tons per year of primary aluminum that is sold as aluminum foundry ingot, pig or sow. The emission units in the AOP are organized and described by the respective process in which they are located (green carbon, baked carbon, anode rodding, potlines, metal products, ancillary, maintenance, and general facility). Each process is described below.

2.a Green Carbon Process (Paste Plant)

The electrolytic process used to produce aluminum requires a sacrificial anode made of coal tar pitch and calcined petroleum coke. Pitch and coke are combined and milled to form a paste, which is then molded into 550 pound blocks for use as anodes in the potlines. The facility where the anodes are manufactured is also referred to as the paste plant. The main emissions from this process are PM_{10} and polycyclic organic matter (POM) emissions from the coke and pitch, and storage, mixing and forming of green carbon.

A dry coke injection scrubber system (Procedair) also called a Pitch Fume Treatment System collects and treats the particulate and POM emissions. In both the collection ducts and the PTFS, the gas streams are mixed with coke fines. The coke fines react with POM through physical adsorbtion on the surface. This process removes the POM from the air stream with very high efficiency. The coke/gas mixture then flows to a baghouse where it is filtered to remove the particulate and the treated gas is released. The captured particulate containing the POM is transferred back to anode paste mixing system as feed material.

2.b Baked Carbon

Anodes formed from the green carbon are baked prior to insertion in the potlines. The green anodes are surrounded by packing coke and baked in the bake ovens. Emissions sources in this process are the bake oven dry scrubber/baghouse stack and the anode bake building roof monitor.

The two anode bake furnaces at Intalco are connected to a single primary control device, a dry alumina injection baghouse which controls bake oven gasses. Bake oven gasses consist of combustion products from natural gas and from volatile matter that is driven off the baking anodes and burned in the ovens, particulate matter from the packing coke surrounding the baking anodes, and fluoride present in spent anodes (anodes removed from the pot cells are crushed and returned to the anode mix). The alumina used in the scrubber is recycled as feedstock in the potrooms. The bake oven gases are mixed with a combination of fresh and reacted alumina. The alumina reacts chemically with hydrogen fluoride and physically with POM to remove them from the air stream with very high efficiency. The alumina/gas mixture then flows to a baghouse where it is filtered to remove the particulate and the treated gas is released. The captured particulate containing the fluoride is transferred back to potlines as feed material.

2.c Anode Rodding

The baked carbon blocks are "rodded" by attaching a stem of aluminum that forms the anode during the electrolytic aluminum production process. In the mating of rods to baked carbon block, cast iron melted in induction furnaces is poured into the rodding holes in the block and allowed to cool.

When about 80 percent of an anode is consumed in the electrolytic process, the anode is removed from the pot and a new anode is inserted. The remaining portion of the spent anode is cooled in the potline area and then transported to the rod shop. The spent anode rods are processed to recover adhering crust and bath and to remove the spent carbon. Recovered bath and crust are processed in the autogenous mill (see Ancillary Equipment below) and returned to the potlines. Spent carbon is sent to the paste plant for recycling into new anodes.

2.d Potlines

Intalco is a primary aluminum smelter. Aluminum is produced continuously in large electrolytic cells called pots by the electrolysis of alumina (Al_2O_3) in a molten cryolite-based electrolyte (Na_3AlF_6). This method is known as the Hall-Heroult process. In this process, alumina is separated into aluminum and oxygen by applying an electric current.

The Hall-Heroult process of aluminum reduction requires the electrolytic decomposition of alumina into two chemical components, metallic aluminum and gaseous oxygen. In order to accomplish this, alumina must be brought into a liquid phase allowing electrical direct current to pass through it. The process uses cryolite, a fluorinated compound of sodium and aluminum, which melts at approximately 1000°C. Molten cryolite dissolves up to about 8% alumina in solution. Molten aluminum, which is formed during the electrolysis, has a slightly higher specific gravity than molten cryolite at the cell operating temperature, and therefore settles to the bottom of the cell forming a molten aluminum metal pad. The electrolytic cell consists of a steel shell lined with insulating materials and having an electrically conductive bottom made of carbon connected to the negative polarity of the power source. Suspended from above and immersed into the cryolite-alumina melt are carbon anodes connected to the positive side of the electric cell. When the electric current flows from the anode to the cathode, alumina is split into metallic aluminum which spreads over the cell bottom and into oxygen which evolves at the inner surface of the carbon anode. The oxygen burns and thereby releases a blend of gasses, primarily carbon

dioxide, carbon monoxide, and some sulfur dioxide. The generation of sulfur dioxide is due to the sulfur content of the anode material. Hydrogen fluoride also evolves from the cryolite bath due to the high operating temperatures of the cells and the presence of moisture in the alumina.

Intalco is a side-work prebake plant with three potlines (identified as potline A, B, and C). Each of Intalco's 720 pots is equipped with 18 carbon anodes. On a periodic basis, alumina is added to the pots, aluminum metal is removed from the pots, and consumed anodes are removed.

All pots at Intalco are hooded to control gaseous and particulate emissions. Emissions captured by the hoods are drawn through the primary control system, which consists of an alumina dry injection system for the control of fluorides. A small fraction of the pot emissions escape capture by the hoods and are released into the potrooms. These emissions are drawn through a secondary control system in the roof. The secondary control system consists of wet roof scrubbers that control PM and total fluoride emissions.

For potlines, primary emission control systems capture pot fumes. The systems consist of two hoods on each pot, and a system of ducts and fans which draw the fume from each pot to a centralized treatment system. The treatment system consists of alumina dry scrubbers which use alumina to react with and remove hydrogen fluoride in the gas stream. The resulting aluminum fluoride is removed, along with other particulate matter by a system of fabric filter containing baghouses prior to venting the treated gasses to the atmosphere. The aluminum fluoride particulate is recycled in the potroom process.

2.e Metal Products

In this process molten aluminum is transferred from the potlines by a series of ladles to holding furnaces in the casthouse. The purpose of the holding furnace is to achieve the correct temperature and alloy specifications. Metal flows from the holding furnaces into casters that form the aluminum into customer specified shapes and alloys. Cast aluminum is then sawed into customer specified lengths.

A remelt furnace is employed to recycle run-around scrap such as saw chips, butts, and ends produced in the cutting process. Once re-melted, this scrap aluminum is placed back into the holding furnace to be re-cast into useable product.

One product line produced in the casthouse, aluminum billet, requires additional processing in a homogenization furnace. The homogenization furnace heat treats each billet to provide the hardness specified by each customer.

2.f Ancillary Equipment

Ancillary process equipment includes alumina ore handling, annex activities (pot rebuild), pitch handling, the TAC station, water treatment plants, storage tanks, and the autogenous mill.

Alumina comes to the facility in ships. The ships are unloaded and alumina is stored in silos before moving by truck to the dry scrubbers in the potlines and the bake oven (for fluoride removal from reduction and bake process exhaust gases). The alumina that has reacted with

fluoride is captured by the baghouses and is stored in day bins to be recycled.

In the annex, new cathode blocks and cathode bus bars are fabricated to form cathode assemblies. Soft pitch and anthracite are mixed to form ramming paste; this paste is used to fill gaps around the cathode assemblies and sidewalls. Aluminum fluoride is unloaded from railcars and stored in a silo near the annex building. An additional annex activity is the refurbishing of the crucibles and ladles used in transporting molten aluminum.

Coal tar pitch, used for making anodes, is unloaded from railcars to pitch storage tanks heated by natural gas-fired boilers using therminol as a heat transfer fluid.

The TAC station receives molten aluminum from the potrooms. Aluminum fluoride is mixed with the molten aluminum to remove lithium. The treated molten aluminum is then moved to the casthouse.

The primary water treatment plant is used to process wastewater from the potroom wet scrubbers and waste water from the casthouse water treatment system. Purified water is returned to the potroom scrubbers and the casthouse. Accumulated sludge is sent to the onsite solid waste landfill. Blowdown water from the primary water treatment plant and leachate from the landfills are treated at the secondary water treatment plant prior to discharge to a NPDES-permitted outfall. Accumulated sludge is landfilled at an onsite RCRA landfill.

Various materials, such as gasoline, diesel, and oil are stored in tanks located across the facility.

The autogenous mill crushes bath and crust recovered from spent anodes in the rod shop. This crushed material is then returned to the potrooms for application to the pots.

2.g Maintenance

Emissions due to maintenance operations at the Intalco have been calculated as a separate process unit. The only significant source of maintenance emissions are the painting operations that occur on-site. VOC emissions from this source are calculated by assuming that all of the VOCs contained in paints used on-site are emitted. PM_{10} emissions are calculated assuming that the emission rates from the paint shop baghouse stack are comparable to those measured by other baghouses at Intalco.

2.h General Facility

The General Facility process includes all of the emission units that are not subject to the requirements of an Ecology Approval Order and that are subject to the general requirements of WAC 173-400 in Conditions H1 through H14 of the AOP.

3. Insignificant Emission Units

Monitoring, recordkeeping, and reporting are not required by Ecology for insignificant emission units (IEU) per WAC 173-401-530(2)(c) and no monitoring, recordkeeping, or reporting requirements for insignificant emission units are included in the AOP. Intalco's IEUs are identified

in their AOP application. In the event that monitoring, recordkeeping, and reporting requirements are imposed pursuant to WAC 173-401-530, an IEU would no longer qualify for the exemption from operating permit testing, monitoring, reporting and recordkeeping requirements.

4. Periodic Monitoring

EPA periodic monitoring guidance lists the following factors to be considered in arriving at appropriate periodic monitoring methodology. These factors were considered when monitoring, recordkeeping or reporting requirements were not specified in the underlying applicable requirement.

1. Likelihood of violating the applicable requirement (i.e. margin of compliance): When considering this criterion, Ecology evaluated available source test data (Appendix B) and the operation and maintenance procedures currently in place at Intalco. When the unit consistently performs well below the standard and has a good O & M history, periodic monitoring may be less frequent or may rely on preventative measures (see the functional integrity discussion in section 5.e) below.

2. Necessity of add-on controls for the unit to meet the emission limit: This criterion allows for the consideration of relative risk in the determination of appropriate periodic monitoring. Those sources that present the largest risk to the environment in the event of a failure of add-on controls, require frequent source testing as well as continuous evaluation of surrogate performance measures and O & M measures. Also considered are the presence of procedures or processes that shut down the unit if the control systems are not operating

3. Variability of emissions from the unit over time: Units which perform consistently require less frequent source testing than those where emissions vary widely

4. The type of monitoring, process, maintenance, or control equipment data already available for the emission unit: Careful consideration is given to the type of control device in use and the demonstrated ability of the company to operate and maintain the device effectively. Control devices such as baghouses can be monitored visually and still provide a high degree of certainty that the unit is functioning appropriately. Therefore source testing can be done less frequently if the company has a history of compliance with operation and maintenance requirements. The addition of functional integrity inspections for all units covered by the AOP requires weekly visual checks of the control equipment and follow-up corrective action whenever visible emissions, leaks in the duct work, excess vibration, inappropriate pressure drop are observed. This requirement focuses on early detection and prevention of problems.

5. Technical and economic considerations associated with the range of possible monitoring methods: Ecology considered the cost versus the benefit of source testing, including, for many sources, the cost of installation of access ports. For a number of small baghouses at Intalco, the following cost factors weighed against the inclusion of periodic source testing;

- Routine source testing and installation of access to these units would cost an estimated total of more than $600,000 over the 5-year permit.
- Source testing produces very few compliance data points; inspection/correction and parametric monitoring assure much closer attention and yield much more frequent and useful data.
- For very small units, the added cost of this source testing is not justified when compared to the relative environmental risk if the unit is actually not meeting standards. For the largest units, where the environmental risk of not meeting the standard is much larger (in terms of mass or concentration), periodic stack testing is required.
- Once the technology is installed, good O & M becomes the most crucial component of ongoing compliance with the limits.
- Even without routine source testing, Ecology retains the authority to require source testing on a case-by-case basis.

5.COMMENTS REGARDING SPECIFIC PERMIT CONDITIONS

5.a Aluminum Plant Emission Standards:

All aluminum plants are required to meet the emission standards of WAC 173-415-030 and -060. WAC 173-415-030 states that "specific emission standards listed in this chapter will take precedence over the general emission standards of chapter 173-400 WAC. The requirements of Condition H3 for Opacity (WAC 173-415-030(3)), Condition H11 for fugitive emissions (WAC 173-415-030(4)), and Conditions H7 and H8 for SO2 (WAC 173-415-030(5)(a) and -030(5)(b)) take precedence over the requirements of WAC 173-400-040(1), WAC 173-400-040(3)(a) and WAC 173-400-040(6), respectively.

5.b "Gapfilling" Requirements:

WAC 173-401-615 (1) of Ecology's Operating Permit Regulation states that the AOP must fulfill the following requirement with respect to monitoring: "(1) Monitoring. Each permit shall contain the following requirements with respect to monitoring: (a)…. (b) Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to subsection (3) of this section. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph;". WAC 173-401-630 (1) of Ecology's Operating Permit Regulation states that the AOP must fulfill the following requirement with respect to compliance: "Consistent with WAC 173-401-615, all chapter 401 permits shall contain compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit."

In keeping with this AOP requirement, Ecology has added monitoring, recordkeeping, and reporting requirements to assure compliance with the conditions of the AOP. The addition of these requirements is called "gapfilling". The gapfilling requirements that have been

added relate to operation and maintenance, particulate and opacity limits and monitoring, and functional integrity inspections. The gapfilling requirements, their relationship to each other, and the benefits of adding them are discussed in sections 5.e through 5.h below.

5.c Operation and Maintenance: Facility-Wide Generally Applicable Requirement

WAC 173-415-030(6) requires Intalco to operate and maintain air pollution control equipment consistent with good air pollution control practice. Determination of whether acceptable operating and maintenance procedures are being used will be based on information such as, but not limited to, monitoring results, the presence of visible emissions, review of operating and maintenance procedures, and inspection of the source.

Intalco has a systematic O & M program in place that has consistently produced good results, as evidenced by low emissions and satisfactory findings during regulatory inspections. The program consists of inspections of baghouses, with inspection records maintained; a preventive maintenance program, with records kept; and corrective action taken promptly.

In addition to these broad O & M requirements, Intalco's AOP includes the following requirements: 1) Functional integrity inspections described in section 5.e below. 2) Opacity observation requirements described in section 5.f below. 3) Particulate Limit and Monitoring Requirements described in section 5.h below. These additional requirements are intended to detect malfunctions in equipment that may cause emission increases and to make Intalco take corrective actions that will keep the equipment functioning properly hence minimizing emissions and assuring continuing compliance with permit limit.

5.d Potroom Operation & Maintenance (Condition D19)

WAC 173-415-030(6) requires owners and operators to operate and maintain facilities and equipment in a manner consistent with good air pollution control practice. Potroom practices and integrity of pot shields are the major factors determining collection efficiency. The alumina dry scrubber and baghouse system effectively removes fluoride and particulates that are collected.

To assure compliance with the O&M requirements Intalco is required to: D19.a) Maintain sufficient draft in the pots to capture direct pot emissions and demonstrate compliance by meeting the parametric monitoring requirements in Condition D22.

Intalco operates a continuous flow monitor on the inlet to each potline dry scrubber baghouse center. The data is averaged over ten minutes and the average stored automatically in a database. Computer programs monitor the data continuously to assure that flow remains above the threshold approved by EPA to represent adequate flow. In order to avoid exceedences of the parametric limits, Intalco has established an alarm system that alerts operators four hours before the limit is exceeded. The alarm system initiates both an auditory alarm, and an electronic page to the baghouse operators. All of this data is available to Ecology upon request. Intalco is required to initiate corrective action within one hour. In condition D22, Intalco is required to report the number of exceedences of the minimum flow parametric limit for each potline and provide the flow monitor records to Ecology upon

request.

D19.b) Maintain flow of fresh alumina into the inlet flow of each potline baghouse and demonstrate compliance by meeting the parametric monitoring requirements Condition D22.

Alumina reacts with gas phase hydrofluoric acid (HF) in the pot gas stream to form a stable aluminum-fluoride compound. This reaction continues to occur as long sufficient numbers of reactive sites are present on the surface of the alumina. Maintaining sufficient flow of fresh alumina assures that adequate alumina surface area is available for reaction with HF. Intalco maintains a continuous monitor on the fresh alumina feed system on each potline dry scrubber baghouse center that senses whether or not fresh alumina is flowing. Ten minute intervals of the flow condition (e.g. Flow on, flow off) are summarized in a database. Computer programs monitor the data continuously to assure that fresh alumina flow is not off for a period approaching the maximum period of time approved by EPA. In order to avoid exceedences of the parametric limits, Intalco has established an alarm system that alerts operators one hour before the limit is exceeded. The alarm system initiates both an auditory alarm, and an electronic page to the baghouse operators. Intalco is required to initiate corrective action within one hour. In condition D22 Intalco is required to report the number of exceedences of the minimum flow parametric limit for each potline and provide the flow monitor records to Ecology upon request.

D19.c) Maintain records of sight glass readings and make them available to Ecology upon request.

D19.d) Check flows on a minimum of four baghouse cells each month. During this process, Intalco is required to readjust the damper position, remeasure the flow, and mark the correct damper position on the stack if the flow from a baghouse cell exceeds the established maximum flow rate for that cell. Intalco is required to provide records of these inspections to Ecology upon request.

D19.e) Conduct weekly inspections to assure that only one hood at a time is open for anode change and tapping operations and that only two hoods are open in any 20 pot section during line breaks for all shifts and for all potlines. If Intalco observes that these practices are not being followed, Intalco is required to take corrective action. Corrective action includes, at a minimum, closing the extra open hoods immediately. Intalco is required to provide records of these pot hood inspections to Ecology upon request.

D19.f) Maintain sufficient flow of recycle water to the wet roof scrubbers and demonstrate compliance by meeting the parametric monitoring requirements of Condition 29.

The wet roof scrubbers provide a secondary means of air pollution control for the potrooms. The wet roof scrubbers draft potroom air through a water spray system that removes both gaseous and particulate fluoride from the air stream. The roof scrubbing system has an overall removal efficiency for fluoride of 80%

Approximately 25 of the scrubbers are located in each pot building. Each of the scrubbers has a reservoir of water that is pumped continuously into the spray section of the scrubber. Overflow water from the reservoir returns to the Primary Wastewater Treatment Plant where fluoride and solids are treated and settled. Treated and clarified water is recycled back to the roof scrubbers. If sufficient water is available in each reservoir to supply full flow to the

spray system, and provide timely turnover of the reservoir contents, the roof scrubber system is considered to be operating properly.
Maintaining sufficient recycle water volume is the key requirement to providing both reservoir volume and turnover. Intalco monitors the flow of recycle water continuously to each potline building. Water treatment plant operators monitor the flow regularly. If the total daily flow of recycle water to a potline reaches the minimum level approved by EPA to demonstrate proper operation, corrective action is initiated within one hour. Records of recycle water flow are available on request.

D19.g) Comply with the functional integrity inspection requirements in Conditions D17 andD18.

D19.h) Conduct semi-annual "limited root cause analyses". These analyses consist of gathering Intalco staff (environmental manager, operator(s) with extensive knowledge of current potroom hood and wet scrubber conditions, potroom source testing staff, and staff who conduct the procedures which generate, manage, review, and report emissions data in the monthly air monitoring reports submitted to Ecology) to evaluate trends in the emissions data and to determine measures to minimize emissions. Intalco is required to submit a summary of the findings of the "limited root cause analysis" and any measures implemented to minimize emissions in the subsequent month's air monitoring report. Intalco is required to include a bar chart of "Potline Emissions" for each of the respective pollutants illustrating the contributions from dry and wet scrubbers for each operating potline for that month and the previous 24 months to illustrate trends in the emissions data.

5.e Functional Integrity Inspections

Intalco is required to conduct functional integrity (FI) inspections at least once a week. The FI inspection for baghouses must include a visual check for visible emissions, leaks in ductwork and housing, excessive vibrations, pressure drop, and sight glass readings (when they are available). FI inspections are used as an indicator of compliance along with particulate monitoring, opacity observations, and 0 & M requirements.

Baghouses at Intalco that are properly operated and maintained produce no visible emissions and can meet a particulate matter (PM) grain loading standards. (see the historical PM emission data in Appendix B). Traditionally, O & M compliance has been demonstrated through observation of visible emissions and routine maintenance activities. Weekly inspection and documentation of operating and maintenance conditions improves the company's ability to identify and correct problems long before an emission standard is violated. Intalco will be required to take corrective action earlier than it would have if the permit relied solely on visible emission observation or stack testing to demonstrate compliance. Corrective action will be taken whenever visible emissions (or other observations from the FI inspections, such as excess vibration) are observed. Records of inspections and corrective actions will be maintained.

Some visible emissions may be observed from baghouses during routine cleaning cycles. These emissions are of short duration and are not expected to exceed the most stringent opacity limits. These low intensity short term emissions are considered to be normal operations and are not subject to the opacity and particulate permit requirement to take corrective action when visible emissions are observed.

5.f Opacity Permit Conditions:

Intalco's baghouses are subject to both the O&M and FI inspection requirements described above. As stated previously, baghouses which are properly maintained meet the opacity limits. The requirement to take corrective action when visible emissions are observed is a more effective compliance strategy than conducting occasional opacity readings. Therefore, no routine opacity monitoring is proposed. Ecology does have the authority (WAC 173-415-030(7) and WAC 173-400-105(2)) to require opacity readings upon request. Ecology has the authority (WAC 173-415-030(6)) to take enforcement action for poor operating practices through the general requirement to operate and maintain facilities in a manner consistent with good air pollution control practice in Condition H1 and through the FI inspection requirements in Condition H4.

For emission units without control devices that may produce visible emissions (including Fugitive Dust from Vehicle Traffic on Paved Roads; Landfill Fugitive Emissions; Anode Block Hole Blower; Crust Recovery Discharge to Truck from Bins 1& 2; Carbon Recovery Discharge to Truck from Bins 1 & 2; Aluminum Fluoride/Anthracite Railcar Unloading Fugitive Dust; Coke Unloading and Transfer Fugitive Dust; Alumina Ore Ship Unloader Clamshell; Rod Shop Induction Furnaces, routine opacity readings using the approved method (EPA Method 9) are impractical due to the configuration of vents, the absence of accessible locations with appropriate viewing angle, and/or effects of weather. Opacity levels from these sources are generally minimal when good operation and maintenance practices are being used. These practices are covered by the O & M and fugitive emission control requirements in conditions H1 and H11. Intalco is required to conduct the Best Management Practices outlined in Condition H11 (WAC 173-415-030(4)) to prevent fugitive emissions.

5.g Corrective Action

Many of the AOP conditions contain the requirement to take corrective action if a problem is observed. Taking corrective action can include, but is not limited to, preparing a work order, ordering parts, shutting down the unit, or completing the repair.

5.h Compliance with Particulate Matter (PM) Limits and Monitoring Requirements:

The monitoring requirements for each Intalco emission unit that is subject to a PM limit are described below. The PM monitoring frequencies described below are either requirements of an existing order or in cases where there are no existing monitoring requirements the monitoring frequencies were established based on the criteria described in "Periodic Monitoring" (section 4 above). In addition to the requirements described for each unit, Ecology established the O&M requirements (described in sections 5.c and 5.d above), opacity requirements (described in 5.f above), and FI inspection requirements (described in 5.e above) respectively in Conditions H1, H3, and H4 of the AOP. These additional requirements are intended to detect malfunctions in baghouse and potroom operations that may cause emission increases and to make Intalco take corrective actions that will keep the equipment functioning properly hence minimizing emissions and assuring continuing compliance with permit limits.

The monitoring, recordkeeping, and reporting requirements in Conditions H1, H3, and H4 were established as "gapfilling requirements" (described in 5.b) under the authority of WAC 173-401-615(1)(b), WAC 173-401-615(2)(a); and WAC 173-401-630(1)). Ecology also has the authority (WAC 173-415-030(7) and WAC 173-400-105(2)) to require compliance testing upon request and has the authority (WAC 173-415-030(6)) to take enforcement action for poor operation and maintenance practices.

Condition A1: Particulate emissions from the Paste Plant (Green Carbon) Baghouse Stack (19,000 acfm) are limited to a concentration of 0.1 gr/dscf. The emissions estimate was derived based on two source tests of the unit indicating that the emission concentration was 0.006 gr/scf. Based on the source test data total emissions are estimated to be 4.3 T/yr. There are safety limitations in accessing the roofs for source testing.

Based on the margin of compliance demonstrated by the existing source tests and the safety concerns, Intalco is not required to conduct source tests on this baghouse. If Ecology determines that source testing is necessary to determine compliance in the future, Ecology has the authority (WAC 173-415-030(7) and WAC 173-400-105(2)) to request that Intalco install appropriate safety and source testing equipment and conduct a source test. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Conditions A3 & A5: Particulate emissions from the phase A and phase B ball mill baghouse stacks (10,000 acfm) are limited to a concentration of 0.1 gr/dscf. Based on an average concentration of 0.0083 gr/scf from two source tests conducted on the phase B baghouse, combined total emissions from both the phase A and B ball mill baghouses are estimated to be 6.2 T/yr. There are safety limitations in accessing the roofs for source testing.

Based on the margin of compliance demonstrated by the existing source tests and the safety concerns, Intalco is not required to conduct source tests on this baghouse. If Ecology determines that source testing is necessary to determine compliance in the future, Ecology has the authority (WAC 173-415-030(7) and WAC 173-400-105(2)) to request that Intalco install appropriate safety and source testing equipment and conduct a source test. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition A7: Particulate emissions from the petroleum coke baghouse stack (7,500 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for this unit. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested was used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from this source are estimated to be 1.4 T/yr. This unit is typically operating at 4,000 hours each year.

Intalco is required to conduct a source test for this unit once every 5 years and upon Ecology's request. Ecology determined that more frequent source testing is not necessary to evaluate compliance based on the relatively small size of this baghouse, the low estimated

annual emission rate, and the typical limited number of annual operating hours. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition A9: Particulate emissions from the spent anode crusher baghouse (18,000 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for this unit. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested was used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from this source are estimated to be 3.4 T/yr. This unit is typically operating at 4,000 hours each year.

Intalco is required to conduct a source test for this unit once every 5 years and upon Ecology's request. Ecology determined the monitoring frequency based on the size and the estimated annual emission rate of the baghouse and on the typical limited number of annual operating hours. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition A12: Particulate emissions from the pitch fume treatment baghouse stack (50,000 acfm) are limited to a concentration of 0.1 gr/dscf. (per WAC 173-400-060) and 2.36 lb/hr (per Order DE02AQIS-3967). The source will be tested once every two years per Order DE02AQIS-3967. Historical source test data demonstrates that t the average PM_{10} mass loading rate (0.79 pounds per hour=3.4 tons per year) operating at full production (8760 hours per year=24 hours a day/7 days a week) is 33% of the PM_{10} limit (2.36 pounds per hour=10.33 tpy).. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition B1: Particulate emissions from the bake oven dry scrubber baghouse stack (100,000 acfm) are limited to a concentration of 0.1 gr/dscf. The bake oven dry scrubber baghouse is also subject to PM emission limits in Order No. 02AQIS-3967 (when PM emissions are added to the emissions from the primary and secondary potline control systems, the PM emissions are not allowed to exceed 5050 pounds per day (based on a monthly average) or 6.0 pounds per ton of aluminum produced (based on a 3-month average)). In addition, the order requires Intalco to notify Ecology if emissions of PM reach levels of 3,147 pounds per day or 4.4 pounds per ton of aluminum produced.

Emission data from quarterly source tests conducted on the bake oven dry scrubber baghouse stack from 1990 to 2003 demonstrated an average concentration of 0.006 gr/dscf. The highest particulate concentration demonstrated from 2000 to 2003 source tests was 0.006 gr/dscf. Based on the source test data and assuming continuous operation (8,760 hrs/yr), particulate emissions from this source are estimated to be 22.5 T/yr.

Intalco is required to conduct a source test once every year and upon Ecology's request. Ecology determined the monitoring frequency based on the size of the baghouse and the estimated annual emission rate of the baghouse and on the historic source test data. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition B16: Particulate emissions from the anode bake building roof vents are limited to a concentration of 0.1 gr/dscf. Annual emissions were estimated to be 3.8 T/yr. Emission estimates for this source are based on source tests conducted on a similar bake furnace operation at another Alcoa facility (Mt. Holly, SC).

Ecology determined that source testing will not be required because of the high cost of installing the EPA method 14 test equipment ($250K) necessary to conduct the test. Continuous operation of the bake oven dry scrubber baghouse (Condition B1) provides maximum reduction of particulate emission from this source. Primary Aluminum MACT requires a semi-annual report detailing all startup, shutdown, and malfunction events for the bake oven dry scrubber baghouse. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Conditions C1 & C3: The particulate emissions from the west and east rod shop baghouse stacks (50,000 acfm each) are limited to a concentration of 0.1 gr/dscf. The emissions estimate was derived based on two source tests, one on the east baghouse and one on the west baghouse. The average of the emission concentrations was 0.0044 gr/scf. Based on the source test data, annual emissions from each baghouse are estimated to be 8.3 T/yr.

Intalco is required to conduct source tests on these baghouses once every 2 years and upon Ecology's request. Ecology determined the monitoring frequency based on the size and estimated annual emission rate of the baghouse. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition C6: Particulate emissions from the north rod shop building roof vents are limited to a concentration of 0.1 gr/dscf. Annual emissions were estimated to be 0.76 T/yr. Emission estimates for this source are based on source tests conducted on a similar rod shop operation at another Alcoa facility (Mt. Holly, SC).

Ecology determined that source testing will not be necessary to evaluate compliance because of the low estimated annual emission rate and the high cost of installing the EPA method 14 test equipment ($150K) necessary to conduct the test. Intalco is required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Conditions D4 through D7: Intalco has three potlines (Potline A, Potline B, and Potline C). Each of the three potlines is controlled by a separate primary control system (dry scrubbers) and by a secondary control system (wet scrubbers). The Potline A primary control system consists of two identical control devices (CD1 and CD2) [Identified respectively as baghouse centers 1 and 2)]. Each CD contains six (6) individu baghouse cells. Each bag consits of nine large pockets witin a total fabric area equivalent to many standard cylindrical bags.

The Potline B primary control system consists of four identical control devices (CD3 North and CD3 South (identified as baghouse center 3) and CD4 North and CD4 South (identified as baghouse center 4). Each of these CD contains ten (10) individual cells. Each cell is equipped with 320 fabric filters and a stack.

The Potline C primary control system consists of four identical control devices (CD5 North and CD5 South (identified as baghouse center 5) and CD6 North and CD6 South (identified

as baghouse center 6). Each of these CDs contains ten (10) individual cells. Each cell is equipped with 320 fabric filters and a stack.

Intalco's secondary control system consists of 154 wet scrubbers on the potline roofs (Potline A has 54 and Potlines B and C each have 50 wet scrubbers).

Potline operations are limited to a PM concentration of 0.1 gr/scf and are subject to a PM mass rate limit of 15 pounds per ton of aluminum produced (WAC 173-415-030(2)). Intalco is also subject to the PM emission limits in Order DE 02AQIS-3967 (PM emissions from the primary and secondary potline control systems when added to the PM emissions from the bake oven dry scrubber baghouse (Condition B1), are not allowed to exceed 5050 pounds per day (based on a monthly average) or 6.0 pounds per ton of aluminum produced (based on a 3-month average)). Compliance with all of these limits is determined and demonstrated by source testing the primary control systems of potlines A, B, and C (4 cells per month per potline [2 cells from each of 2 baghouse centers]) using Alcoa Method B-54 or another EPA approved method for a minimum of 24 hours and by sampling the secondary control systems of potlines A, B, and C using Alcoa Method B-54a (three roof scrubbers simultaneously three times per month per potline).

Intalco is also required to comply with the respective Opacity, FI, and O&M requirements in conditions H3; D17 and D18; and D19.

Conditions E1: Particulate emissions from each holding furnace are limited to a concentration of 0.1 gr/dscf. Source testing of a representative holding furnace under worst case charging conditions measured an average emission concentration of 0.91 gr/dscf. The total emission rate for all 12 holding furnaces is estimated to be 48 T/yr (4 T/yr/furnace).

Intalco is required to conduct a source test on a different one of the 12 furnaces every 2 years and upon Ecology's request. Ecology determined that more frequent stack testing is not necessary to evaluate compliance because the operating limits set in Intalco's Secondary Aluminum MACT compliance program (Conditions E31 through E58) limit the potential to emit of these sources. The limits include maximum solid flux use, maximum alloying element addition, limitations on scrap quality and volume. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Conditions E6, E7, E8: Particulate emissions from the remelt furnace are limited to a concentration of 0.1 gr/dscf (WAC 400-173-050(1)) and emission rates of 2.5 tons of PM for any twelve month period and 0.22 tons of PM for any single month. Intalco is also required to comply with PM_{10} emissions limits. Emissions of PM_{10} may not exceed 1.5 tons for any twelve month period, or 0.13 tons for any single month from the remelt furnace stack (Order No. 03AQIS-5671). PM emission levels will be controlled by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions E12 and E13) until new limits are established based on performance testing conducted on the modified remelt furnace (per Condition E11).

Intalco has opted to report all PM as PM10 and to comply with the PM10 limit in Condition E8. If Intalco decides to establish emission factors for PM and PM10 and to report PM and

PM10 separately, Intalco is required to develop a source test plan which describes how the emission factors will be derived and to submit the source test plan to Ecology for review and approval. Intalco will be allowed to use the Ecology approved emission factors to report separate emission rates for PM and PM10. When reporting PM and PM10 derived from the approved emission factors, Intalco is required to comply with the respective PM and PM10 limits in Conditions E7 and E8.

Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, E9, and E15 of the AOP.

Conditions E16: Particulate emissions from all of the MHD furnaces are limited to a concentration of 0.1 gr/dscf. Source testing of a representative holding furnace under worst case charging conditions measured an average emission concentration of 0.91 gr/dscf. The total emission rate for the four MHD furnaces is estimated to be 16 T/yr (4 T/yr/furnace).

Intalco is required to conduct a source test on each MHD furnace at startup and alternate source tests on a different furnace once every five years during full operation. Ecology determined that more frequent stack testing is not necessary because the operating limits set in Intalco's Secondary Aluminum MACT compliance program (Conditions E31 through E58) limit the potential to emit of these sources. The limits include maximum solid flux use, maximum alloying element addition, limitations on scrap quality and volume. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition E24: Particulate emissions from the homogenization furnace are limited to a concentration of 0.1 gr/dscf. The only source of particulate from the homogenization furnace is the combustion of natural gas. In lieu of conducting particulate testing, Intalco will use natural gas consumption to calculate particulate emissions. Worst-case particulate emissions will be calculated using AP-42 emission factor (7.6 pounds PM10/1e+6 cubic feet of natural gas from Section 1.4, Small Industrial Boilers) for particulate from natural gas combustion, natural gas usage by this source, and design excess air settings. Based on that calculation, the estimated annual emission rate would be 0.65 T/yr. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition E29: Particulate emissions from the dross/silicon storage baghouse (55,000 acfm) are limited to a concentration of 0.1 gr/dscf. Eight semi-annual source tests conducted since 1997 demonstrate an average emission concentration of 0.00091 gr/dscf. This represents less than 1% of the established emission limit. Using the average emission concentration and assuming Intalco operated the baghouse system continuously (8,760 hrs/yr) the mass emission of particulate would be 1.9 T/yr. The baghouse is typically operated approximately 90 hours per year.

Intalco is required to conduct source tests on this baghouse upon request. Ecology determined that more frequent source testing is not necessary based on the demonstrated margin of compliance and the low estimated annual emission rate. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F1: The particulate emissions from the primary water treatment plant wet scrubber stack (2,700 acfm) are limited to a concentration of 0.1 gr/dscf. Emission data from 38 source tests conducted from 1990 to 2003 demonstrated an average PM concentration of 0.020 gr/dscf. The highest source test from 2000 to 2003 was 0.025 gr/dscf.. The annual emission rate based on that data is estimated to be 2.8 T/yr

Intalco is required to conduct a source test once every 5 years and upon Ecology's request. Ecology determined that more frequent source testing is not necessary to evaluate compliance based on the demonstrated margin of compliance, the small size of the baghouse, and the low estimated annual emission rate. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F4: Particulate emissions from the annex paste plant baghouse stack (5,550 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for this unit. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested was used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from this source are estimated to be 1.04 T/yr.

Intalco is required to conduct a source test once every 5 years and upon Ecology's request. Ecology determined that more frequent source testing is not necessary to evaluate compliance based on the margin of compliance, the small size of the baghouse, and the low estimated annual emission rate. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F6: Particulate emissions from the ladle cleaning baghouse (14,100 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for this unit. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested were used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from this source are estimated to be 2.64 T/yr. This unit is typically operating less than 4,000 hours each year.

A source test is required upon request. Ecology determined that more frequent stack testing is not necessary to evaluate compliance based on the margin of compliance and typical limited number of annual operating hours Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F8 & F9: Particulate emissions from the autogenous mill baghouse stack are limited to a concentration of 0.1 gr/dscf and 5.0 tons/year per Order DE02AQIS-3967. Intalco is required to conduct one source test every five years. . Ecology determined that more frequent stack testing is not necessary to evaluate compliance based on an evaluation of historical source test data. The average PM emission rate of 28 source tests conducted since May 1998 was 1.46 tons per year (less than 30% of the 5.0 tpy emission limit).

Condition F13 & F15 & F17: Particulate emissions from the alumina ore silo #4 rail car unloader baghouse stack (19,600 acfm), the alumina ore ship unloading baghouse stack (15,000 acfm), and the brick crushing facility baghouse stack (20,000 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for these units. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested were used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from these sources are estimated to be 3.7 T/yr, 2.8 T/yr, and 3.7 T/yr, respectively. These units are typically operated less than 1,000 hours each year.

The configuration of these baghouse exhausts does not allow for installation of source testing equipment. Ecology determined that source testing will not be required because of the configuration of the exhausts, the estimated annual emission rate is low, and these baghouses are typically operated less than 1000 hours per year. Intalco is required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F19: Particulate emissions from the alumina silo #4 truck loader baghouse stack (5,000 acfm) are limited to a concentration of 0.1 gr/dscf. There is no source test data available for this unit. For baghouses where specific test data were not available, data for all similar baghouse stacks that were source tested were used to develop an emission factor. The arithmetic mean of grain loading for the similar baghouses was 0.0035 grains/dscf. To be conservative, this value was rounded up to 0.005 grains/dscf. Based on the emission factor and assuming continuous operation (8,760 hrs/yr), the emissions from this source are estimated to be 0.95 T/yr. This unit is typically operating less than 1,000 hours each year.

Intalco is required to conduct a source test upon Ecology's request. Ecology determined that more frequent source testing is not necessary to evaluate compliance based on the margin of compliance, the small size of the baghouse, the low estimated annual emission rate, and the limited number of hours of operation. Intalco is also required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

Condition F21: Particulate emissions from the annex cathode assembly area roof vents are limited to a concentration of 0.1 gr/dscf. These emissions are generated by the bonding of the cathodes to bars and the melting of cast iron in the induction furnaces. AP-42 emission factors for these two process steps were used to estimate emissions from the roof vents. Annual emissions were estimated to be 1.56 T/yr.

Ecology determined that source testing will not be necessary to evaluate compliance because of the low estimated annual emission rate and the high cost of installing the EPA method 14 test equipment ($150K) necessary to conduct the test. Intalco is required to comply with the respective O&M, Opacity, and FI requirements in conditions H1, H3, and H4 of the AOP.

5.i MACT

In October, 1997, USEPA promulgated National Emission Standards for Hazardous Air Pollutants (NESHAPS) representing Maximum Achievable Control Technology (MACT) for the primary aluminum industry. These rules are contained in the Code of Federal Regulations at 40CFR Part 63, Subchapter LL. Hazardous air pollutants (HAPs) for this industry include total fluoride (TF) and polycyclic organic matter (POM).

The MACT standards for primary aluminum were subcategorized into major process areas (potlines, paste plants, and bake ovens) that produce emissions of either or both of these HAPs. Potlines were further subcategorized by the type of reduction cell employed. Intalco is listed in the federal regulations as being within the side-worked prebake one (SWPB1) subcategory.

In prebake plants, including SWPBI plants, potlines produce fluoride in both gaseous and particulate form. Total fluoride standards address both gaseous and particulate forms of fluoride. MACT standards for prebake potlines address only total fluoride because POMs are driven off from the anode material during the anode baking process and are not of concern in prebake plant potline emissions.. Paste production plants (called "green carbon" at Intalco), produce POM emissions but fluoride emissions are not significant. Incoming coal tar pitch, used to manufacture green anodes, contains substantial quantities of volatile polycyclic hydrocarbons which escape during the melting, mixing, and pressing processes within the carbon plant. MACT standards for paste plants require a specific technology for POM emission control. Numerical POM limits are not included in the MACT standards. Dry coke scrubbers are the preferred technology although other technologies may be used if equivalency is demonstrated. Intalco operates a dry coke scrubber (called the pitch fume treatment system). Anode bake ovens produce both fluoride and POM emissions. These emissions are captured and treated in Intalco's dry alumina scrubber system.

Intalco has taken a proactive approach to implementing MACT requirements and is in compliance with MACT emission standards. The Primary MACT requirements are included in the Intalco's Air Operating Permit.

On March 23, 2000, the USEPA promulgated National Emission Standards for Hazardous Air Pollutants (NESHAPS) representing Maximum Achievable Control Technology (MACT) for the secondary aluminum industry. These rules are contained in the Code of Federal Regulations at 40 CFR Part 63, Subpart RR. Hazardous air pollutants (HAPs) for this industry include organic HAPs, inorganic gaseous HAPs (hydrogen chloride, hydrogen fluoride and chlorine) and particulate HAP metals. These MACT standards apply to secondary aluminum production facilities using clean charge, aluminum scrap, foundry returns or molten metal as the raw material and performing, among other things, one or more of the following processes: furnace operations such as melting, holding, refining, fluxing or alloying; in-line fluxing; or dross cooling. Secondary MACT standards apply to the holding and remelt furnaces and the in-line fluxers in the casthouse at Intalco.

Intalco was required to demonstrate compliance with the Secondary MACT requirements for their existing sources by March 24, 2003. Intalco has demonstrated compliance with the MACT requirements. Intalco has submitted the Compliance Status Notification (40CFR63.1510); Operation, Maintenance, and Monitoring Plan (40CFR63.1510); Site

Specific Monitoring Plan (40CFR63.1510)(o); Scrap Inspection Program (40CFR63.1510)(p); Startup, Shutdown,and Malfunction Plan (40CFR63.1516)(a); Site Specific Test Plan (40CFR63.1511)(a); and the Initial Performance test Report (40CFR63.1515)(b); in compliance with the Secondary MACT .

5.j Other Permit Conditions not required by MACT

Condition B2: The bake oven dry scrubber baghouse (100,000 acfm) is subject to TF emission limits in Order No. 02AQIS-3967 (when TF emissions are added to the emissions from the primary and secondary potline control systems, the TF emissions are not allowed to exceed 1350 pounds per day (based on a monthly average) or 1.6 pounds per ton of aluminum produced (based on a 3-month average)). .

Order No. 02AQIS-3967 requires Intalco to determine and demonstrate compliance with the TF limits by conducting a source test on the bake oven baghouse 3 times per year using Alcoa Methods.

Condition D3: Historically, very cold weather conditions compounded by high wind speeds threatens to freeze the scrubber liquor circulating through potline roof scrubbers. If the liquid freezes in the distribution system it would cause tremendous damage therefore it is necessary to drain the liquid from all scrubbers to protect them from damage. Each winter, there is a possibility the liquid in the roof scrubbers will be drained for a period of up to two weeks. Intalco will follow the procedures specified in the current version of the Startup Shutdown, and Malfunction Plan to determine when shutdown is necessary, and when the roof scrubbing system can be safely started again.

The fans generally remain operational in the roof scrubbers during these cold weather periods, and the fans continue to exhaust the potroom air. If the weather is cold enough, the potline roofs become extremely slippery and dangerous. Additionally, the high winds often associated with the cold weather make walking along the roofline very dangerous. During these periods where the scrubbers continue to operate, but conditions prohibit safe roof access, Intalco will not conduct source testing of the roof scrubbers. Instead, Intalco will notify Ecology of the situation and use all tests conducted over the calendar month to demonstrate compliance.

Intalco has developed an extensive database of emissions from the roof scrubbers with the water spray turned off. The emission rates from 144 tests over 24 months indicate that potline roof emissions average 3.355 lb TF/ton Al with the water spray off. This value will be used to calculate emissions for the days during a monthly compliance period when roof scrubbers are drained.

Intalco is required to notify Ecology that the roof scrubbers are going to be shut off and is required to use all of the source tests conducted over the calendar month to demonstrate compliance. For potlines where less than the required three tests were completed in the calendar month (according to the schedules specified in the approved Air Monitoring Plan), data from the preceding 24 months is to be substituted. Intalco is required to determine the average and standard deviation of all roof scrubber tests from the data set of each potline. The average plus two standard deviations will be used for all tests that could not be run. Intalco is required to report the average of all actual tests run during the compliance period

and the values obtained from the average and standard deviations described above as the roof emissions for each potline in the respective monthly air monitoring report submitted to Ecology.

Condition E5: The remelt furnace is limited to a carbon monoxide (CO) concentration of 100 ppm on a dry basis corrected to 3% oxygen and CO emission rates of 5.5 tons for any twelve month period or 0.47 tons for any single month. CO emission levels will be controlled by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions E12 and E13) until new limits are established. CO limits and monitoring requirements will be determined based on the results of performance testing on the modified system and will be established in a new order issued by Ecology.

Condition E9: Intalco is required to comply with opacity limits (Opacity shall not exceed: E7.a) an average of 5 % for any 60 minute period and; E7.b) 20 % for more than 3 minutes in any 1 hour period, or E7.c) 5 % for more than 6 consecutive minutes in any 60 minute period) and to determine and demonstrate compliance with those limits by: a). Conducting weekly visible emission tests using EPA RM 9 per 40 CFR Part 60 until the continuous opacity monitor (COM) is operational. b). Increasing the opacity monitoring (per a).) to three times per week if the opacity limits are exceeded more than once in any 7 day period. c). Installing a COM on the remelt furnace stack by August 01, 2004. d). Maintaining the COM in compliance with EPA Performance Specification 1 per 40 CFR Part 60, Appendix B. If Intalco shuts down all casthouse operations prior to August 01, 2004, Intalco shall install the COM before startup of remelt operations.e). Taking corrective action if opacity exceeds any of the opacity limits. Corrective actions include but are not limited to: (a) adjusting flue residence time by adjusting charge door height; (b) reducing firing rate; (c) re-analyzing scrap for oil content; and (d) reviewing and modifying cast house work practices. Intalco is required to record the date and time of each corrective action taken, the source type being charged during the exceedance, and the actions taken to prevent future occurrences. f). Reporting all opacity exceedances, noncompliance with the requirements defined in a) through e) above, and the corrective actions taken in the respective monthly air monitoring report submitted to Ecology.

Condition E10: Intalco is required to control nitrogen oxide (NOx) emission levels by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions E12 and E13) until new NOx limits are established. New NOx limits and monitoring requirements will be determined based on the results of performance testing on the modified system and will be established in a new order issued by Ecology. See the discussion for Condition E11 that follows.

Condition E11: On May 6, 2003, Intalco submitted a letter to Ecology requesting that Ecology revise the opacity monitoring requirements for the remelt furnace contained in Order No. DE 02AQIS-5106. The letter stated that because of the economic impact of the impending September 2003 curtailment, Intalco would not have the resources available within the timeframe outlined in Order No. DE 02AQIS-5106 to engineer, obtain funding, and operate and maintain the continuous opacity monitors (COM) required in the order. In response to Intalco's request, Ecology issued Order No. DE 03AQIS-5540 (on May 28, 2003) modifying the opacity monitoring requirement to include a 10-day visible emission monitoring program and if no emissions were

observed, to continue visible emissions monitoring on a weekly basis, and extended the COM installation requirement until April 15, 2004. Order No. DE 03AQIS-5540 rescinded and replaced Order No. DE 02AQIS-5106.

During the first source test of the remelt furnace, conducted on April 8, 2003 (per Order No. DE 03AQIS-5540), Intalco discovered that NOx concentrations were much higher than the 65 ppm NOx at 3% oxygen emission limit in condition 2.a) of the order. Following review of the test report and validation of the results, Intalco immediately notified Ecology and shut down operation of the remelt furnace.

Intalco's preliminary investigation discovered that the low NOx system installed in the remelt furnace was subject to temperature limitations that prevent the low NOx injectors from operating during the entire melt cycle. The low NOx operational mode is triggered by a thermocouple located in the coldest portion of the furnace. The coldest portion of the furnace does not reach the operating range of the low NOx injectors for the majority of the melt cycle resulting in elevated NOx emissions.

Ecology reviewed the impacts of the increase in NOx emissions on the Ambient Source Impact Level (ASIL) per WAC 173-460, National Ambient Air Quality Standard (NAAQS), and Prevention of Significant Deterioration (PSD). The modeled NOx concentration at the nearest facility boundary exceeded the ASIL. Therefore, the background ambient NOx concentration was added to the modeled NOx concentration from the remelt furnace at the nearest facility boundary and compared the total value to the NAAQS. The combined NOx concentration was 55% of the NAAQS. An emission factor was calculated based on the maximum source test concentration of NOx. Actual gas usage and the calculated emission factor were used to calculate the annualized NOx emissions. The annual NOx emissions for the remelt furnace were 57% of the PSD threshold for NOx.

Intalco requested that Ecology issue an order allowing Intalco to continue operation of the remelt furnace under operational limits imposed in the order that assure that Intalco does not trigger PSD or exceed the NAAQS. Intalco also notified Ecology (On July 25, 2003) that the MHD furnaces (Emission Units 221a and 221b) would not be modified for remelt service and requested that the terms and conditions applicable to the modification of these sources be rescinded.

Ecology issued Order DE 03AQIS-5671 on July 30, 2003. Order DE 03AQIS-5671 rescinded and replaced per Order No. DE 03AQIS-5540. Among other ongoing requirements, Order DE DE 03AQIS-5671 required Intalco to reevaluate Best Available Control Technology (BACT), conduct an engineering study and perform a series of six source tests, install a continuous opacity monitor (COM) on the remelt furnace by April 15, 2004, and complete any modifications recommended by the engineering study by July 01, 2004. Intalco completed and submitted the findings of the required BACT reevaluation (on August 29, 2003) and submitted the findings of the engineering study (on November 26, 2003). Intalco completed a series of six source tests to determine the emission rates for NOx, CO, and,PM in October 2003 and January 2004. The BACT reevaluation

concluded that the existing combustion system with modifications is BACT for control of NOx from the remelt furnace. The engineering study recommended modifications to the furnace and burner systems that will optimize the operation of the furnace to minimize NOx emissions.

Intalco submitted an e-mail message (on March 31, 2004) requesting that Ecology extend two deadlines contained in Order DE 03AQIS-5671. The first deadline, in Condition 5.c of Order DE 03AQIS-5671, required Intalco to install a continuous opacity monitor (COM) on the remelt furnace by April 15, 2004. The second deadline, in Condition 1.c of Order DE 03AQIS-5671, required Intalco to make the modifications recommended in the Engineering study (completed in compliance with Condition 1.b of the order) by July 01, 2004. Intalco requested an extension of the deadlines due to delays resulting from the uncertainties of business conditions and lack of availability of critical parts for the modifications.

Ecology issued Order DE04AQIS-1070 on April 14, 2004. Order DE04AQIS-1070 rescinds and replaces per Order No. DE 03AQIS-5671. Order DE04AQIS-1070 extends the deadlines for the modifications to the remelt furnace and the installation of the COM until August 01, 2004. Order DE04AQIS-1070 also continues to limit the volume of natural gas and the amount of aluminum scrap that is melted in order to control NOx, PM, and CO emission levels until the remelt furnace is modified and new limits and monitoring requirements are established based on performance tests that will be conducted on the modified remelt furnace system. The conditions of Order DE 03AQIS-5671 that were completed to Ecology's satisfaction were not included in the order. All the other terms and conditions of Order DE 03AQIS-5671 were included in Order DE04AQIS-1070. The terms and conditions of Order DE04AQIS-1070 will assure compliance with the National Ambient Air Quality Standards, and applicable Acceptable Source Impact Levels (ASIL), and will assure that Intalco does not trigger PSD requirements.

After completion of the modifications recommended by the engineering study and source testing of the modified system, Ecology will evaluate the data from source tests conducted on the modified system and issue a new order containing NOx, CO, and PM limits and monitoring requirements based on the source test data.

Condition E12: Intalco is limited to using no more than 75,000 MMBtu of natural gas/year in the remelt furnace. This is an interim limit until source testing on the modified remelt furnace demonstrates (to Ecology's satisfaction) that restrictions on consumption of natural gas are not necessary to meet the emission limits in Conditions E5 through E8 and E10. See the discussion for Condition E11 above.

Condition E13: Intalco is limited to melting no more than 45,640 tons of scrap per year in the remelt furnace. This is an interim limit until source testing on the modified remelt furnace demonstrates (to Ecology's satisfaction) that restrictions on the amount of scrap melted are not necessary to meet the emission limits in Conditions to meet the emission limits in Conditions E5 through E8 and E10. See the discussion for Condition E11 above.

Condition E14: Intalco is required to develop an Operation and Maintenance (O&M) Manual for the remelt furnace system by October 29, 2004. Intalco is required to follow the O&M manual and update it as necessary.

Condition E27: The homogenization furnace is limited to a NOx concentration of 83 ppm corrected to 3% oxygen. Historical source test data demonstrated that the average NOx concentration of six source tests conducted since February 1999 was 67.5 ppm (81% of the 83 ppm emission limit). Ecology's typically allows a monitoring reduction only if the average emission rate is <75% of the respective limit. Intalco is required to continue annual source testing and will be allowed to reduce the frequency to once every five years if three consecutive source tests demonstrate emission rates <62 ppm.

Condition F11: The autogenous mill baghouse (45,000 acfm) is limited to a TF emission rate of 2.7 tons per year (per Order DE02AQIS-3967). Intalco is required to conduct source tests once every five years and upon Ecology's request. Historical source test data demnstrated that the average TF emission rate for 28 source tests conducted since May 1998 was 0.55 tpy (20% of the 2.7 tpy limit).

Condition G1: Intalco is required to track VOC usage at the paint shop through purchase records or other methods approved by Ecology. Intalco is required to report annual VOC usage in the December Air Monitoring Report submitted to Ecology

5.k SO2 Permit Conditions (Conditions H7 and H8):

Chapter 173-415-030 (5)(a) and (b) WAC limits SO_2 emissions from aluminum smelters to 60 lb per ton of aluminum produced on a monthly maximum basis, and also limits emissions to no more than 1,000 ppm SO_2.

Intalco controls SO_2 emissions by limiting sulfur content in coke and pitch and by using low sulfur content natural gas for combustion units. The majority of SO_2 emissions are generated in the potlines and the anode bake furnace. Intalco is required to determine SO_2 emissions by summing the potroom and bake oven SO_2 emissions.

Using a worst-case analysis, Ecology determined that Intalco would be incapable of violating the 1,000 ppm SO_2 standard, with the possible exception of an extreme upset condition. Therefore, no routine monitoring for this standard is proposed. Ecology does have the authority (WAC 173-415-030(7) and WAC 173-400-105(2)) to require source testing if it is deemed necessary.

5.l Ambient and Forage Fluoride Standards and Monitoring – State Only Requirement (Condition H9):

Order No. 03AQIS-5550 describes prior monitoring and modeling of ambient and forage fluoride near the plant. Intalco has consistently met ambient fluoride and forage standards. Intalco will be required to operate one ambient monitoring station continuously and sample 10 forage sites during the March to October growing season. The ambient monitoring station will be located adjacent to an area that is actively grazed by animals. Intalco also conducts an annual vegetation survey voluntarily. The requirements of this order are state only conditions in the permit.

DEPARTMENT OF ECOLOGY

IN THE MATTER OF CONSOLIDATING ORDERS FOR AIR CONTAMINANT SOURCES AT ALCOA INTALCO WORKS ALUMINUM CORPORATION IN FERNDALE, WASHINGTON	))))	ORDER No: DE02AQIS-3967

To: Alcoa Intalco Works Aluminum Corporation
Post Office Box 937
Ferndale, Washington 98248

Regulatory Authority

This Order is issued pursuant to the authorities set forth in Chapter 70.94 RCW, including 70.94.141 (3), .152, .153, and .331; and WAC 173-400-110. The requirements in this Order describe the specific air emission limitations and operating conditions, and the methods, frequency, and format for monitoring and reporting that apply to Alcoa Intalco Works Aluminum Corporation (Intalco). All regulations cited in this Order are those in effect on the date of Order issuance. Nothing in this Order relieves the permittee of obligations under any applicable law or regulation.

Background

The Washington State Department of Ecology (Ecology) has issued the following air orders and amendments to Intalco. Intalco requested that these orders be consolidated into one order to facilitate the issuance of the Title V Air Operating Permit by providing a consistent approach to assuring compliance on a continuing basis for the respective emission units. The following orders, modified orders, and amendments are rescinded and replaced by this consolidated order. The authorities to construct, install, and operate approved in the following orders are included in this consolidated order.

This consolidated order is organized by process (general facility, green carbon, potlines, metal products, and ancillary). Each of the orders listed below is provided in the respective process in which the emission unit is located.

- Order DE 89-55 (Autogenous mill) issued June 5, 1989.
- Order DE 89-I131 (Modification of Potline A) issued on April 21, 1995. This order amended order DE 89-I131 issued on September 05, 1989.
- Order DE 94AQ-I001 (Inert Gas Dross Cooling System) issued June 11, 1994.
- Order DE 96AQ-I054 (Magneto hydrodynamic horizontal casting facilities) issued July 18, 1996. This order rescinds order DE 96AQ-I017 issued on May 3, 1996.
- Order DE 97AQ-I020 (Construction of a Dross and silicon storage building with a 55,000 scfm baghouse) issued June 4, 1997.
- Order DE 98AQ-I029 (Replacement of four existing homogenization furnaces with a new single improved homogenization furnace) issued May 27, 1998.
- Order DE 00AQIS-833 issued April 10, 2000 (Pitch fume treatment system).

Terms and Conditions

1. This order identifies those conditions that are currently applicable to Intalco and deletes all other conditions that were contained in the original Orders referenced in Section II above.

2. Intalco shall comply with the emission, operational, monitoring, and reporting requirements identified in this order.

3. All information required by Ecology shall be submitted in the first monthly Air Monitoring Report after the data is available, unless otherwise specified herein.

Process Area: **GENERAL FACILITY**

The following conditions apply to the General Facility.

Condition A1: Operation and Maintenance (O&M). At all times, including periods of abnormal operation and upset, Intalco shall, to the extent practicable, maintain the facility, and operate and maintain air pollution control equipment in a manner consistent with good air pollution control practice. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to Ecology which may include, but is not limited to, monitoring results, opacity observations, visible emissions observations, inspections of the source, and reviews to determine that the plant is following its O & M procedures.

Condition A2: Opacity Monitoring.
A2.a) Intalco shall conduct source tests upon Ecology's request using EPA RM 9 per 40 CFR 60, Appendix A, or another EPA approved method. Condition A2.a applies to only the following emission units:

- The Pitch Fume treatment system (Emission Unit #316) Condition B2.
- The Homogenization Furnace (Emission Unit #314) Condition D9.
- The Autogenous Mill (Emission Unit #209) Condition E4.

A2.b) Intalco shall conduct source tests upon Ecology's request using EPA RM 22 per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Condition A2.c. Condition A2.b applies to only the Inert Dross Cooler System (Emission Unit #271) Condition D2.

A2.c) For the emission units identified in conditions A2.a and A2.b., If visible emissions are present , Intalco shall take corrective action as soon as practical but within 24 hours. Intalco shall record the results of corrective actions taken in the inspection log. Taking a corrective
action shall include but not be limited to preparing a work order, ordering parts, shutting down the unit, or completing the repair that eliminates the respective problem. Corrective actions shall be taken by employees or contractors designated by Intalco.

Condition A3: Functional Integrity Inspection.
A3.a) Intalco shall continuously monitor coke and air flow in accordance with 40 CFR 63.848(f)(1) and conduct a daily visible emission check and a weekly functional integrity inspection on the Pitch Fume Treatment System (PFTS; Emission Unit #316; Condition B5) that, at a minimum, includes a visual check of the following parameters: visible emissions, leaks, pump outlet pressure, and amperage to recirculation pumps. Intalco shall comply with conditions A1 and A3.d.

A3.b) Intalco shall conduct a weekly functional integrity inspection of the following emission units that, at a minimum, includes a visual check of visible emissions. Intalco shall comply with condition A3.d.

- The Inert Dross Cooler System (Emission Unit #271; Condition D3).
- The Magneto Hydrodynamic (MHD) Horizontal Casting Facility (Emission Unit #220a&b and 221a&b; Condition D5).
- The Homogenization Furnace (Emission Unit #314; Condition D10).

A3.c) Intalco shall conduct a weekly functional integrity inspection of the following baghouses that, at a minimum, includes a visual check of the following parameters: visible emissions, leaks in ductwork and housing, excess vibration, and pressure drop. Intalco shall comply with conditions A1 and A3.d.

- The Dross and Silicon Storage Baghouse (Emission Unit #315; Condition D7).
- The Autogenous Mill Baghouse (Emission Unit #209; Condition E5).

A3.d) Intalco shall record the observations and readings of the parameters assessed (e.g., amperage to recirculation pumps on the PFTS) in the emission unit's inspection log. If visible emissions are present or another problem is observed, Intalco shall take corrective action as soon as practical but within 24 hours. Intalco shall record the results of corrective actions taken in the inspection log. Taking a corrective action shall include but not be limited to preparing a work order, ordering parts, shutting down the unit, or completing the repair that eliminates the respective problem. Corrective actions shall be taken by employees or contractors designated by Intalco.

Condition A4: Reporting Requirements.

Intalco shall submit a monthly air monitoring report which contains the respective results of the monitoring required in the conditions of this order. The report shall be submitted within 30 days of the end of each calendar month. Intalco shall report the data in a format that will allow a comparison of all the data to the respective emission limits. The format shall include a table which summarizes the required source tests conducted during that month and the dates when they were completed. Intalco shall submit the results of source tests to Ecology in the air monitoring report for the month that the results are received by Intalco. These requirements apply to Conditions B1, B3, C1, C3, C4, C6, C9-C12, D4, D6, D8, E1-E3 of this order.

Process Area: **GREEN CARBON**

Background from DE 00AQIS-833: On December 10, 1999, Intalco submitted a Notice of Construction (NOC) application to replace four existing pitch fume collection systems and four uncontrolled stacks with a green mill pitch fume treatment system (PFTS). The project included a new baghouse, fan, stack, injection fines tank, and venturi reactor on a support structure located adjacent to the southwest wall of the paste plant. Fume collection ductwork is routed through the paste plant to specific pickup points to collect hydrocarbon fumes from the process.

The PFTS was designed to respond to EPA's Maximum Achievable Control Technology (MACT) requirements in 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants) which require green mills to "install, operate, and maintain equipment for capture of emissions and vent emissions to a dry coke scrubber" (pitch fume treatment system). The submission was done in accordance with WAC 173-400-114.

On January 6, 2000, Ecology submitted a letter to Intalco stating that the NOC application was incomplete. Intalco submitted the information needed to complete the application. Ecology submitted a letter to Intalco on March 21, 2000 stating that Ecology had determined that the application was complete and that a final regulatory approval order would be issued on or before April 21, 2000.

The Department of Ecology made a determination of nonsignificance (on April 6, 2000), in accordance with the State Environmental Policy Act rules (Chapter 197-11 WAC).

In accordance with WAC 173-400-171, public involvement was not deemed necessary, and public notice was not made. The Department of Ecology, State of Washington, pursuant to RCW 70.94.153 and WAC 173-400-114, made the following determinations:

1. The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 and –415 WAC. Also, the operation thereof, at the location proposed, will not cause the exceedance of ambient air quality standards.
2. The proposed project, if constructed and operated as herein required, will reduce the emissions currently released for the emission units in the green mill and will not have a significant adverse impact upon the environment.

3. The proposed PFTS is RACT for the green mill.

Order No. DE 00AQIS-833 authorizing the construction, installation and operation of the Pitch Fume Treatment System was issued on April 10, 2000.

The following conditions apply to the Pitch Fume Treatment System in the Green Mill Process.

Pitch Fume Treatment System – 316			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
B1	PM_{10}	Emissions of PM_{10} shall not exceed 2.36 pounds per hour.	Intalco shall conduct a source test once every two years and upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Conditions A1, A4, and B5.
B2	Opacity	Opacity shall not exceed an average of 5% for more than six consecutive minutes in any sixty minute period.	Intalco shall comply with Conditions A1, A2.a, and B5.
B3	Polycyclic Organic Matter (POMs- excluding naphthalene)	Emissions of POM shall not exceed 0.54 lbs per hour.	Intalco shall conduct a source test once every two years and upon Ecology's request using EPA RM 315 per 40 CFR 63, Appendix A, or another EPA approved method. A copy of the test report shall be submitted to Ecology within 90 days of the date of the test. Intalco can reduce the frequency of source testing to once every 5 years if each of three consecutive source tests demonstrates that the emission rate is < 75% of the applicable limit. Intalco shall resume the original source testing frequency any time a source test demonstrates emissions have increased above 75% of the applicable limit. Intalco shall submit a letter notifying Ecology that the monitoring frequency will be reduced. The notification shall demonstrate the justification for the reduced monitoring frequency and schedule. Intalco shall submit the notification to Ecology within 60 days after the last source test used to make the demonstration. Intalco shall comply with conditions A1, A4, and B5.
B4	Operation and Maintenance Manual	The O&M manual shall include the certification required under 40 CFR 63.843(b) and parametric monitoring in accordance with 40 CFR 63.848(f)(1).	Intalco shall develop, follow, and update the O&M Manual whenever changes are made to the emission capture system. Intalco shall make copies of the O&M manual available for review upon Ecology's request.
B5	Functional Integrity	Inspection	Intalco shall comply with Condition A3.a.

Process Area: **POTLINES**

Background from DE 89-I131: In 1989, Intalco submitted a Notice of Construction to modify their aluminum making reduction cells (pots). The modification redesigned the bus-bar distribution system to increase potlife and increase current efficiency. Ecology approved the modification and issued an accompanying order, Order No. DE 89-I131, to limit the resultant air pollutants and to insure Intalco would not trigger the Prevention of Significant Deterioration (PSD) at significant emission levels, as defined by WAC 173-400-030(67).

After the modification was completed in 1991, Intalco found that they could not achieve the new limits required by the order. The modification project did not achieve the increased current efficiency that Intalco expected. Using actual air emission data supplied by Intalco for the 1989 to 1994 time frame, Ecology determined that Intalco did not trigger PSD emission levels during that same time frame. Ecology and Intalco agreed to amend the limits in Order No. DE 89-I131 based on actual emission data that Intalco had supplied. Several meetings between Ecology and Intalco have been held to define baseline emissions and any air emission increases due to the modification project. This evaluation has been complicated by the reduction in air emissions due to the shutting down of part of the potlines due to poor market conditions.

Order DE 89-I131-1st Amendment authorizing the Modification of Potlines A, B, and C was issued on April 21, 1995. It replaces Order DE I131 issued on September 05, 1989. The amended order was issued pursuant to RCW 70.94.141, RCW 70.94.152, WAC 173-400-110 and WAC 173-415. The amended order includes: 1.) air emission limits, 2.) production limits, and 3.) operational limits as required by the Environmental Protection Agency's (EPA) guidance for PSD avoidance, Limiting Potential To Emit In New Source Permitting, June 13, 1989, EPA.

As determined in the original approval, New Source Performance Standards (NSPS) are applicable to Intalco's Ferndale smelter. Intalco shall comply with all standards and requirements of NSPS (40 CFR Part 60 Subpart S).

The following conditions apply to Potlines A, B, and C and their primary and secondary control systems.

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
C1	Aluminum Production Limit	Net potline production of Aluminum shall be limited to ≤ 307,000 tons of aluminum per calendar year. Net production of aluminum is the total mass of molten metal produced from tapping all pots in all operating potlines, measured at the casthouse scales and the rod shop scales	Intalco shall maintain a record of the daily net production of aluminum and report the average daily net aluminum production in the monthly air monitoring. Intalco shall comply with Condition A4.
C2	Operational Limits	The following limits shall not be exceeded : • Operating ≤ 720 pots/day • 3.0 % sulfur in coke • 0.6 % sulfur in pitch • 91.25 % current efficiency • 150,000 amps of current • 0.4250 carbon consumption ratio (pounds of carbon	Intalco shall maintain a record of the data collected for the parameters listed below, compute the monthly average, and report the monthly average (unless another average is noted below) for each parameter in the monthly air monitoring report submitted to Ecology: • Number of pots operated per day (potdays) • Percent sulfur in pitch (Intalco shall analyze each incoming load or batch of pitch for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods)

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
		consumed per pound of Aluminum produced)	• Percent sulfur in coke (Intalco shall analyze each incoming load or batch of coke for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods) • Percent sulfur in baked anode as a weekly composite of anode core samples • Current Efficiency • Carbon consumption ratio as a daily average computed monthly • Amperes of current • Average number of days per pot to complete a pot relining • Total pounds of aluminum sent to the cast house per day
C3	"Water Off" (periods when the secondary control system roof scrubbers are turned off due to potential freezing conditions) emission limits and conditions are covered under WAC 173-415-030(6)	All of the limits and conditions in Conditions C1 through C21 were developed for "water on" conditions. Water Off emission limits and conditions are covered under WAC 173-415-030(6) until Ecology issues an order with new conditions. Intalco shall follow the procedures specified in the current version of the Startup Shutdown and Malfunction Plan to determine when shutdown is necessary, and when the roof scrubbing system can be safely started again. During the periods where the scrubbers continue to operate, but conditions prohibit safe roof access, Intalco shall not be required to conduct source testing of the roof scrubbers.	Intalco shall notify Ecology that the roof scrubbers are going to be shut off. Intalco shall use all tests conducted over the calendar month to demonstrate compliance. For potlines where less than the required three tests were completed in the calendar month according to the schedules specified in 40 CFR 63.847(b)(8), data from the preceding 24 months shall be substituted. The average and standard deviation of all roof scrubber tests shall be computed from the data set of each potline. The average plus two standard deviations shall be used for all tests that could not be run. Intalco shall report the average of all actual tests run during the compliance period and the values obtained from the average and standard deviations described above as the roof emissions for each potline in the respective monthly air monitoring report submitted to Ecology. Intalco shall comply with Condition A4.
C4	Particulate (PM)	Emissions of PM shall not exceed a combined total of 5050 pounds per day (calculated on a monthly average) from the potlines (primary and secondary control systems) and the	Intalco shall determine PM emissions and demonstrate compliance with the PM limits in Conditions C4 and C5 by source testing the primary control systems of potlines A, B, and C (4 cells per month per potline [2 cells from each of 2 baghouse centers]) using Alcoa Method B-54 or another EPA

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
		bake ovens.	approved method for a minimum of 24 hours and by sampling the secondary control systems of potlines A, B, and C using Alcoa Method B-54a (three roof scrubbers simultaneously three times per month per potline). Intalco shall report the results of the source tests conducted in compliance with Conditions C4 and C5 in accordance with Condition A4. Intalco shall comply with Conditions C13, C14, and C15.
C5	PM	Emissions of PM shall not exceed a combined total of 6.0 pounds per ton of aluminum (calculated on a three month average) produced from the potlines (primary and secondary control systems) and the bake ovens.	Intalco shall determine PM emissions and demonstrate compliance with the PM limit by complying with the Monitoring, Reporting and Record-keeping (MRR) requirements in Condition C4.
C6	Total Fluoride (TF)	Emissions of TF shall not exceed a combined total of 1,350 pounds per day (calculated on a one month average) from the potlines (primary and secondary control systems) and the bake ovens.	Intalco shall determine TF emissions and demonstrate compliance with the TF limits in Conditions C8 and C9 by source testing the potline A primary control system (8 Baghouse (B/H) cells per 12 month rolling period per potline (4 cells from 2 control devices)) and potlines B&C (8 B/H Cells per 12 month rolling period per potline (2 cells from each of 4 control devices)) using Alcoa Method 4075A and by sampling the secondary control system using Alcoa Method B-54a (three roof scrubbers simultaneously three times per month per potline). Intalco shall report the results of the source tests conducted in compliance with Conditions C8 and C9 in accordance with Condition A4. Intalco shall comply with Conditions C13, C14, and C1.
C7	TF	Emissions of TF shall not exceed a combined total of 1.6 pounds per ton of aluminum (calculated on a three month average) produced from the potlines (primary and secondary control systems) and the bake ovens.	Intalco shall determine TF emissions and demonstrate compliance with the TF limit by complying with the MRR requirements in Condition C6.
C8	Sulfur dioxide (SO_2)	Emissions of SO_2 shall not exceed 37, 780 pounds per day.	Intalco shall determine the SO2 emitted by using the following formula: SO2 emissions in lbs./day = (carbon consumption ratio)x(% sulfur in baked anodes)x(2 lb sulfur dioxide per lb sulfur)x(2000 pounds Aluminum per ton)x(Tons of Aluminum per day).

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
			Carbon consumption ratio (pounds of carbon consumed per pounds of Aluminum produced). Intalco shall report the monthly average of pounds of SO2 per day in the respective monthly air monitoring report submitted to Ecology per Condition A4. Intalco shall maintain records of production data used to develop carbon consumption ratio and tons of aluminum produced. Intalco shall provide the records to Ecology upon request.
C9	SO_2	Emissions of SO2 shall not exceed 44.8 pounds per ton of aluminum produced (calculated on a three month average).	Intalco shall determine the SO2 emitted by using the formula in Condition C12. Intalco shall report the three month average of the pounds of SO2 per ton of aluminum in the respective monthly air monitoring report submitted to Ecology in accordance with Condition A4.
C10	Carbon monoxide (CO)	Emissions of CO shall not exceed 236,150 pounds per day (calculated on a one month average).	Intalco shall calculate CO emissions based on current efficiency of the potlines using the following formula: Emissions of CO in pounds per day = (100/C.E.) -1)x(3/2)x (28.01/21.98)x(aluminum production)x (0.917). C.E.= Current Efficiency of the potlines. 0.917 = the ratio of measured CO emissions to calculated CO emissions (Intalco's self reported empirical value). Intalco shall report the monthly average of pounds of CO per day in the monthly air monitoring report submitted to Ecology, in accordance with Condition A4.
C11	CO	Emissions of CO shall not exceed 280 pounds per ton of aluminum produced (calculated on a three month average).	Intalco shall determine CO emissions and demonstrate compliance with the 280 lb CO/ton Al limit by using the method described in Condition C15. Intalco shall report the three month average of the pounds of CO per ton of aluminum in the monthly air monitoring report submitted to Ecology, in accordance with Condition A4.
C12	Nitrogen oxides (NOx)	Emissions of NOx shall not exceed 590 pounds per day (calculated on a one month average).	Intalco shall determine plant wide emissions of NOx by using the AP-42 emission factor of 140 lbs of NOx per million cubic feet of natural gas consumed (as in a large natural gas combustion boiler unit). Intalco shall report the monthly average of pounds of NOx per day in the monthly air monitoring report submitted to Ecology, in accordance with Condition A4.

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
C13	Primary Control System Functional Integrity	Inspection	Intalco shall conduct a daily functional integrity inspection of the potroom baghouses that, at a minimum, includes a visual check of the following parameters: visible emissions, leaks in ductwork and housing, excess vibration, pressure drop, and sight glass readings. Intalco shall comply with Condition A3.d.
C14	Secondary Control System Functional Integrity	Inspection	Intalco shall conduct a weekly functional integrity inspection of all the pot hoods. During that inspection, Intalco shall classify the condition of each hood as good, fair, or poor. Intalco shall direct hood repair crews to begin the repair process for the poor condition hoods during their first shift after the inspection. Hoods classified as fair shall be repaired within 15 days. Intalco shall conduct a daily functional integrity inspection of the potroom wet scrubbers that, at a minimum, includes a visual check of the following parameters: visible emissions (per 40 CFR 63.848(g) Primary Aluminum MACT), and if processing adequate volumes of water and air (per Condition 40 CFR 60.848(f)(5)(Primary Aluminum MACT)) . Intalco shall comply with Condition A3.d.
C15	Potroom O&M	Potroom O&M	Intalco shall comply with Condition A1. Intalco shall determine and demonstrate compliance with the O&M requirement in Condition A1 for the potroom primary and secondary control systems by: a) Maintaining sufficient draft in the pots to capture direct pot emissions. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements in Intalco's Parametric Monitoring Plan (per 40 CFR 63.847 (h) and 40 CFR 63.848 (f)(1) and by checking flows on a minimum of four baghouse cells each month. During this process, Intalco shall readjust the damper position, remeasure the flow, and mark the correct damper position on the stack if the flow from a baghouse cell exceeds the established maximum flow rate for that cell. Intalco shall provide records of these inspections to Ecology upon request. ; b) Maintaining flow of fresh alumina into the inlet flow of each potline baghouse. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements in Intalco's Parametric Monitoring Plan (per 40 CFR 63.847 (h) and 40 CFR 63.848 (f)(1). c) Maintaining records of sight glass readings

Potline's A, B, and C Primary (181 through 186) and Secondary Control Systems (22 through 180)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
			and making those records available to Ecology upon request. d) Conducting weekly inspections to assure that only one hood at a time is open for anode change and tapping operations and that only two hoods are open in any 20 pot section during line breaks for all shifts and for all potlines. If Intalco observes that these practices are not being followed, Intalco shall take corrective action. Corrective action shall include, at a minimum, closing the extra open hoods immediately. Intalco shall provide records of these pot hood inspections to Ecology upon request; e) Maintaining sufficient flow of recycle water to the wet roof scrubbers. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements in Intalco's Parametric Monitoring Plan (per 40 CFR 63.847 (h) and 40 CFR 63.848 (5). f) Complying with the functional integrity inspection requirements in Conditions C13 and C14; g) Conducting a semi-annual "limited root cause analysis". These analyses shall consist of gathering Intalco staff (environmental manager, operator(s) with extensive knowledge of current potroom hood and wet scrubber conditions, potroom source testing staff, and staff who conduct the procedures which generate, manage, review, and report emissions data in the monthly air monitoring reports submitted to Ecology) to evaluate trends in the emissions data and to determine measures to minimize emissions. Intalco shall submit a summary of the findings of the "limited root cause analysis" and any measures implemented to minimize emissions in the subsequent month's air monitoring report. Intalco shall also include a bar chart of "Potline Emissions" for each of the respective pollutants illustrating the contributions from dry and wet scrubbers for each operating potline for that month and the previous 24 months to illustrate trends in the emissions data.

Process Area: **METAL PRODUCTS**

Background from DE 94AQ-I001:
On November 08, 1993, a Notice of Construction was submitted by Intalco for the installation of the new inert gas dross coolers and bunkers. Molten aluminum metal is produced from Intalco's potlines, transported to a cast house and placed into holding furnaces for later casting. Periodically, the top surface of the molten metal is skimmed to remove dross. This dross is comprised primarily of aluminum and aluminum oxide.

Intalco had been processing their dross in a rotary salt barrel furnace. In this process, the dross is placed into a large rotary drum, fluxes and heat are added and the molten aluminum recovered. The waste material, called salt cake, is then disposed in a dangerous waste landfill. If the salt barrel is out of service or its capacity exceeded, the hot dross is temporarily stored in outside bunkers until processing. This storage of dross in the outside bunkers often generates uncontrolled visible emissions while the dross cools.

Under Intalco's proposed inert gas dross cooler system, the dross would first be skimmed into specially designed pans that have a great thermal mass (the large thermal mass acts as a heat sink to quickly cool the dross and minimize oxidation of aluminum). Next, the pans with the hot dross are placed under an airtight hood and argon gas is injected into the area under the hood, driving out oxygen and extinguishing the oxidation reaction (conversion of aluminum to aluminum oxide). Finally, after the aluminum oxidation has ceased the dross is placed in one of three bunkers until transport to an external facility to recover the aluminum metal. Under Intalco's proposal they would install up to twelve inert gas dross cooling hoods and three new bunkers. The three bunkers would hold dross from aluminum alloyed with three types of material; silicon, manganese, and magnesium. Loading of dross from this facility into trucks would be conducted inside a cast house building extension. Intalco does not expect any visible emissions from the bunker extension.

On December 15, 1993, the Department of Ecology made a determination that Intalco's application was complete with the exception of an environmental checklist and PSD applicability form.

In accordance with WAC 173 -400-17(1), public involvement was not deemed necessary, and accordingly, public notice was not made.

A determination of nonsignificance was issued concurrently with the NOC approval in conformance with the State Environmental Policy Act rules (Chapter 197-11 WAC).

Order number DE 94AQ-I001 authorizing the construction, installation, and operation of a new Inert Gas Dross Cooler System was issued June 11, 1994.

In relation to the above, the Department of Ecology, State of Washington, pursuant to RCW 70.94.152 and WAC 173-400-113, made the following determinations:

1. The proposed project, if constructed and operated as herein required, will comply with all applicable new source performance standards, national emission standards for hazardous air pollutants, and emission standards adopted under Chapter 70.94 RCW.

2. The proposed project, if constructed and operated as herein required, will provide all known, available and reasonable methods of emission control.

3. Emissions from the proposed project, if constructed and operated as herein required, will not cause or contribute to a violation of any ambient air quality standard.

The following conditions apply to the Inert Gas Dross Cooler System in the Metal Products Process.

Inert Gas Dross Cooler System **271**			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
D1	Dross	Intalco shall limit storage	

Inert Gas Dross Cooler System **271**			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring, Reporting and Record-keeping
	Storage	of dross to only the casthouse building extension	
D2	Opacity	Opacity shall not exceed 5% for more than six consecutive minutes in any sixty minute period.	Intalco shall comply with Conditions A1, A2.b, and D3.
D3	Functional Integrity	Inspection	Intalco shall comply with Conditions A1 and A3.b.

Background from DE 96AQ-I054:

On December 22, 1994, Intalco submitted a Notice of Construction (NOC), as required by WAC 173-400-110(1)(a) for a new source, for the construction of a second Magneto Hydrodynamic (MHD) Horizontal Casting Facility. Intalco also included the SEPA Checklist, a PSD Application Form, and the plans and specifications. The first MHD Facility (MHD1) included two furnaces identified as 221a and 221b. At the time that furnaces 221a and 221b were constructed, they were not subject to New Source Review and therefore Intalco was not required to have an approval order to construct and operate the furnaces. On January 20, 1995, Ecology sent a letter notifying Intalco that their application was complete. The letter also stated that a final determination would follow for the construction of a second MHD facility. Ecology indicated the approval would be in the form of a regulatory order.

In February 1995, Intalco communicated that they may increase production at the MHD facilities beyond what was originally submitted due to a higher market demand. The proposed project included the expansion of the existing MHD facility, by going from four strand to six strand casting, and the installation of a second MHD casting facility.

Ecology requested additional information before making a final determination. On March 22, 1995, Intalco submitted additional information for the increased production and new projected emission rates for NO_x and carbon monoxide (CO). They also submitted actual gas consumption data from tests conducted during the week of February 5, 1995.

On May 3, 1996, Ecology issued an order, Order No. DE 96AQ-I017, for the operation of furnaces 220a and 220b (MHD2). Order DE 96AQ-I017 included furnaces 221a and 221b
(MHD1) making them subject to the same limits and monitoring requirements as furnaces 220a and 220b. The order placed limits on natural gas consumption as a surrogate measurement for NO_x.

On May 30, 1996, Intalco appealed the order and requested a stay of the monitoring conditions.

As a result of Intalco's appeal to the Pollution Control Hearings Board (PCHB No. 96-198)., Ecology elected to cancel the order and issue a new order with a specific limit for NO_x to ensure that the burners are operating at BACT levels as required by WAC 173-400-113.

The Department of Ecology, State of Washington, pursuant to RCW 70.94.152 and WAC 173-400-110, made the following determinations:

1. The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 and Chapter 173-460 WAC, and the operation thereof, at the location proposed, will not result in ambient air quality standards being exceeded.
2. The proposed project, if constructed and operated as herein required, will employ BACT for NO_x with the use of low NO_x burners for the specific stationary sources.
3. The proposed project, if constructed and operated as herein required, will not have a significant adverse impact upon the environment.

Order number DE 96AQ-I054, **authorizing** a new NOx limit for MHD1 and MHD2, was issued July 18, 1996.

The following conditions apply to the MHD facilities in the Metal Products Process:

Magneto Hydrodynamic (MHD) Horizontal Casting Facilities – 221a,b (MHD1) and 220a,b (MHD2)			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring and Reporting
D4	NOx	Emissions of NOx shall not exceed 83 ppm corrected to 3% oxygen at 1500 – 1600 Deg. F	Intalco shall conduct a source test on each MHD furnace at startup and on alternating MHD furnaces once every five years during full operation using EPA RM 7E for NOx and RM 3A for Oxygen as per 40 CFR Part 60, Appendix A, or another EPA approved method. Intalco shall comply with Conditions A1, A4, and D5.
D5	Functional Integrity	Inspection	Intalco shall comply with Conditions A1 and A3.b.

Background from DE 97AQ-I020: On November 22, 1996, Intalco submitted a Notice of Construction (NOC), as required by WAC 173-400-110(1)(a) for a new source, for the construction of a dross and silicon storage building with a 55,000 SCFM baghouse. Intalco also included the SEPA Checklist, a PSD Application form, and some of the plans and specifications.

On December 20, 1996, Ecology sent a letter requesting additional information. This information request included specifications of the baghouse, identification of any Chapter 173-460 WAC Class A and Class B Toxic Air Pollutants (TAPS), concentrations of TAPs expected, and the operation schedule. The letter also stated that BACT for baghouses is 0.005 grains per dry standard cubic foot (dscf).

On January 8, 1997, Intalco sent a response to Ecology's request. This submittal included the baghouse specifications, a list of identified TAPs and their expected concentrations, and the operation schedule for activities in the dross and silicon storage building. The identified TAPs were as follows:

Dross TAPs	**Silicon TAPs**
Manganese at $\leq$ 2.0 %	Calcium Oxide $\leq$ 0.38 %
Chromium at $\leq$ 0.5 %	
Copper at $\leq$ 5.0 %	

Dross trucks would be loaded two to five times per week. This activity requires approximately 1.5 hours per load. Fifteen hundred pounds of cooled dross would be placed in the storage building every two hours.

Silicon truck unloading activities would be approximately three loads per week. Each unloading requires approximately 1.5 hours. The silicon feed hopper would be loaded four times per day and the silicon batch hoppers would be loaded approximately twelve times per day. These activities would require less than three hours per day.

On February 28, 1997, Intalco submitted new information from an analysis of dust from the dross loading operation. This new information was as follows (this is the highest values of two tests):

Dross TAPs (percent by weight)

Manganese = 0.0047 %
Chromium = 0.0075 %
Copper at = 0.0017 %
Calcium Oxide = 4.21 %

On May 20, 1997, Ecology made a completeness determination for this NOC application and also made a determination of nonsignificance (DNS) as found in the State Environmental Policy Act rules (Chapter 197-11 WAC).

In relation to the above, the Department of Ecology, State of Washington, pursuant to RCW 70.94.152 and WAC 173-400-110, made the following determinations:

1. The proposed new source will comply with all applicable new source performance standards, national emission standards of hazardous air pollutants, and emission standards adopted under Chapter 70.94 RCW.
2. The proposed new source will employ best available control technology.
3. Air emissions from this project will not cause or contribute to a violation of ambient air quality standards.
4. This project is by definition a new source and must meet the applicable requirements of WAC 173-400-113 (5).
5. This project does not trigger the prevention of significant deterioration (PSD) program.

6. This project, as described in the NOC application and associated documents, meets the requirements of Chapter 173-460 WAC for toxic air pollutants (TAPs).

Order number DE 97AQ-I020 authorizing the construction, installation, and operation of a new Dross and Silicon Storage Building with a Baghouse was issued on June 04, 1997.

The following conditions apply to the Dross and Silicon Storage Baghouse in the Metal Products Process:

Dross and Silicon Storage Baghouse (55,000 SCFM) - 315			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring and Reporting
D6	PM	Emissions of PM shall not exceed 0.005 grains /dscf.	Intalco shall conduct source tests upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, or another EPA approved method during dross truck loading. Intalco shall comply with Conditions A1, A4, and D7.
D7	Functional Integrity	Inspection	Intalco shall comply with Conditions A1 and A3.c.

Background from DE 98AQ-I029: On March 5, 1998, Intalco submitted a Notice of Construction (NOC) to replace an existing air emission source. The submission was done under WAC 173-400-114. Intalco proposed replacing four existing homogenization furnaces with a new single improved homogenization furnace.

On March 27, 1998, an E-mail message was sent to Intalco requesting additional information be submitted in order to complete the NOC review. Intalco submitted the additional information on April 24, 1998.

On May 13, 1998, Ecology determined that Intalco's application was complete. A letter was sent to Intalco stating the application was complete and an approval order would follow.

On May 1, 1998, the Department of Ecology made a determination of nonsignificance, in conformance with the State Environmental Policy Act rules (Chapter 197-11 WAC).

In accordance with WAC 173-400-171, public involvement was not deemed necessary, and public notice was not made.

The Department of Ecology, State of Washington, pursuant to RCW 70.94.153 and WAC 173-400-114, made the following determinations:

1. The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC. Also, the operation thereof, at the location proposed, will not cause the exceedance of ambient air quality standards.

2. The proposed project, if constructed and operated as herein required, will reduce the emissions currently released from the casting facilities and will not have a significant adverse impact upon the environment.

3. The low NO_x cold air burners are RACT for this emission unit.

Order number DE 98AQ-I029 authorizing the replacement of four existing Homogenization Furnaces with a single new Homogenization Furnace was issued on May 27, 1998.

The following conditions apply to the Homogenization Furnace in the Metal Products Process:

Homogenization Furnace – 314			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring and Reporting
D8	NOx	Emissions of NOx shall not exceed 83 ppm corrected to 3% oxygen.	Intalco shall conduct an annual source test on the furnace during full operation using EPA RM 7E for NOx and RM 3A for Oxygen as per 40 CFR Part 60, Appendix A, or another EPA approved method. Intalco can reduce the frequency of source testing to once every 5 years if each of three consecutive source tests demonstrates that the emission rate is < 75% of the applicable limit. Intalco shall resume the original source testing frequency any time a source test demonstrates emissions have increased above 75% of the applicable limit. Intalco shall submit a letter notifying Ecology that the monitoring frequency will be reduced. The notification shall demonstrate the justification for the reduced monitoring frequency and schedule. Intalco shall submit the notification to Ecology within 60 days after the last source test used to make the demonstration. Intalco shall comply with Conditions A1, A4, and D10.
D9	Opacity	Opacity shall not exceed 5% for more than six consecutive minutes in any sixty minute period.	Intalco shall comply with conditions A1, A2.a, and D10.
D10	Functional Integrity	Inspection	Intalco shall comply with Conditions A1 and A3.b.

Process Area: **ANCILLARY**

Background from DE 89-55: A Notice of Construction was submitted by Intalco on February 10, 1989 for improvements to the bath crushing system in the form of a new autogenous mill. New equipment required for these improvements were new bath crushing mill, baghouse, dust collection system, conveyor system, and storage silo. Emissions from the new system would be ducted to the new baghouse.

On March 23, 1989, the Department issued a preliminary determination regarding air emission standards and their intent to approve the application for construction. Public notice of the preliminary determination was made on March 29, 1989 and April 5, 1989 to obtain comments from interested persons. No comments were received.

A determination of nonsignificance was issued by the Whatcom County Bureau of Buildings and Code

Administration on April 3, 1989 in conformance with the State Environmental Policy Act.

Following these actions, the Department of Ecology made the following determinations pursuant to RCW 70.94.152 and WAC 173-403-050:

1. The proposed project, if constructed and operated as herein required, will meet the state air pollution regulations, as outlined in Chapter 173-403 and Chapter 173-415 WAC.
2. The proposed project, if constructed and operated as herein required, will not significantly or adversely affect ambient air quality.
3. The proposed project, if constructed and operated as herein required, will not have a significant adverse impact upon the environment.

Order number DE 89-55 authorizing the construction, installation, and operation of improvements to the bath crushing system in the form of a new autogenous mill including a new baghouse was issued on June 05, 1989.

The following conditions apply to the Autogenous Mill in the Ancillary Processes area:

Autogenous Mill – 209			
Condition Number	Pollutant/ Parameter	Description of the Requirement	Monitoring and Reporting
E1	PM	Emissions of PM shall not exceed 5.0 tons of PM per year.	Intalco shall conduct source tests once every 5 years and upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Conditions A1, A4, and E5.
E2	PM	Emissions of PM shall not exceed 0.01 grains per dscf.	Intalco shall conduct source tests once every 5 years and upon Ecology's request using EPA RM 5 as per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Condition A1, A4, and E5.
E3	TF	Emissions of TF shall not exceed 2.7 tons per year.	Intalco shall conduct source tests once every five years and upon Ecology's request using EPA RM 5/13B per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with condition A1, A4, and E5.
E4	Opacity	Opacity shall not exceed 5% for more than six consecutive minutes in any sixty minute period.	Intalco shall comply with Conditions A1, A2.a, and E5.
E5	Functional Integrity	Inspection	Intalco shall comply with Conditions A1 and A3.c.

Authorization

The request to consolidate the previously issued orders is approved.

The Department of Ecology made a determination of nonsignificance on April 15, 2004, in accordance with the State Environmental Policy Act rules (Chapter 197-11 WAC). In accordance with WAC 173-400-171, public involvement was not deemed necessary, and public notice was not made.

Authorization of this order may be modified, suspended, or revoked in whole or in part for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization, and/or

2. Obtaining this authorization by misrepresentation or failure to disclose all relevant facts.

The provisions of this authorization are severable, and, if any portion of this authorization, or application of any provisions of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

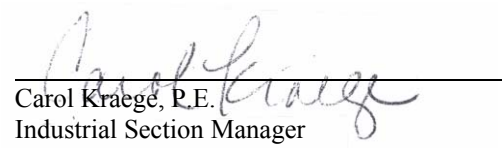
Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

All plans, specification, and other information submitted to the Department of Ecology relative to these projects and further documents and any further authorizations or approvals or denials in relation thereto shall be kept at the Industrial Section Office of the Department of Ecology and by such action shall be incorporated herein and made a part thereof.

Nothing in this order shall be construed as obviating compliance with any applicable requirement of law other than those specifically addressed herein.

This Order may be appealed. Your appeal must be filed with the Pollution Control Hearings Board, P.O. Box 40903, Olympia, Washington 98504-0903. At the same time, your appeal must also be sent to the Department of Ecology c/o Industrial Section, P.O. Box 47706, Olympia, Washington 98504-7706. Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Ch. 43.2B RCW.

Dated April 15, 2004 at Lacey, Washington



Carol Kraege, P.E.
Industrial Section Manager
Solid Waste and Financial Assistance Program

FACT SHEET

Alcoa Intalco Works Aluminum Corporation
Consolidated Order No. 02AQIS-3967

Introduction:

Ecology has issued nine approval orders, modifications and amendments that establish requirements for Alcoa Intalco Works Aluminum Corporation's (Intalco) air pollution control equipment. Two of the nine approval orders were issued shortly before this Consolidated Order (CO) was issued. Because of time constraints, those orders were not included in this consolidated order. The conditions of those orders are included in the Air Operating Permit (AOP). The orders included in the CO have been written over the past 13 years. Some of those orders contained conditions that have been completed (and are therefore no longer applicable) and also include inconsistencies in language and monitoring requirements for similar emission units. The purpose of developing this consolidated order (CO) is to rescind orders or requirements that are no longer applicable, and to revise and consolidate applicable terms and conditions into a single order with language that consistently defines the facility's air quality requirements and to facilitate the issuance of Intalco's AOP in accordance with the requirements of WAC 173-401. All of the conditions of the previous orders were reviewed and all changes to the requirements of the previous orders are described in this fact sheet.

WAC 173-401-615 (1)(b) of Ecology's Operating Permit Regulation states that the AOP must fulfill the following requirement with respect to monitoring: "Each permit shall contain the following requirements with respect to monitoring: Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring shall be required sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to subsection (3) of this section. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph". WAC 173-401-630 (1) of Ecology's Operating Permit Regulation states that the AOP must fulfill the following requirement with respect to compliance: "Consistent with WAC 173-401-615, all chapter 401 permits shall contain compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit."

In keeping with this AOP requirement, Ecology has added monitoring, recordkeeping, and reporting requirements to Intalco's AOP to assure compliance with the conditions of the AOP. The addition of these requirements is called "gapfilling". The gapfilling requirements that have been added relate to operation and maintenance, particulate and opacity limits and monitoring, and functional integrity inspections. The gapfilling requirements, their relationship to each other, and the benefits of adding them are discussed in sections A.1 through A.4 below.

A. Operation and Maintenance Requirement, Particulate and Opacity Limits and Monitoring, and Functional Integrity Inspections.

1. **Operation and Maintenance (O & M) requirements (Conditions A1 and C15):** The previous orders included different types of O & M requirements for emission units. The consolidated order replaces all of the individual operation and maintenance requirements with this plant-wide operation and maintenance requirement and also included specific O&M requirements for the potrooms (Condition C15). The first sentence of Condition A1 in the CO is taken from WAC 173-415-030 (6). The second sentence of Condition A1 is similar to the kraft pulp mill O&M requirements in WAC 173-405-040 (10).

   The O&M condition requires Intalco to follow standard operating procedures to ensure that emission units and control systems are properly operated and maintained. The opacity, particulate, and functional integrity conditions (described below) are requirements that track how well O&M is implemented in the plant. The O&M requirement will provide the facility with a single standard applicable to the entire plant, and one that can be easily incorporated into the air operating permit.

2. **Particulate limits and monitoring requirements (Conditions B1, C4, C5, D6 , E1, and E2):** Approximately 90% of the actual particulate emissions from Intalco are emitted from the potline primary and secondary emission control system stacks. The primary and secondary emission control system stacks are systematically tested on a monthly basis. Of the remaining 10 % of the particulate, approximately 9% is emitted from numerous small and medium sized dust collectors on various processes and material handling units throughout the facility, some of which are covered by this order. Source testing requirements for these smaller control systems are less frequent than the source testing done on the potline emission control system because the emissions from each of these smaller sources are insignificant when compared to the amount of controlled emissions from the potline systems. The final 1% of the particulate emissions are emitted from the combustion of natural gas.

   The minimum requirements for each emission unit that is subject to a particulate limit are: 1) conduct source tests using the method and frequency described and also upon Ecology's request; 2) comply with an opacity limit and monitoring requirements (see item A.3) which requires Intalco to take corrective action any time visible emissions are observed ("find-it-fix-it"); and 3) conduct weekly functional integrity inspections (see item A.4). In addition to the those requirements, these emission units are subject to the O&M requirement (see item A.1)

   There is a general relationship between visible emissions and grain loading that supports using the surrogate "no visible emissions/ find-it-fix-it" to measure compliance between the periodic particulate source testing. However, a specific correlation between visible emissions and grain loading has not been established that can translate a specific level of visible emissions to a quantity of particulate matter. Accordingly, the "find it, fix it" approach provides a measure of continuous

compliance for grain loading requirements.

3. **Opacity limits and monitoring requirements (Conditions B2, D2, D9, and E4):** In previous orders, the monitoring methods for opacity varied significantly for similar emission units. In this consolidated order, the opacity requirements are applied consistently to each of the emission units that are subject to an opacity limit. The minimum requirements for each emission unit that is subject to an opacity limit are: 1) comply with the 5% opacity limit, 2) conduct Method 9 source tests upon Ecology's request, 3) take corrective action to eliminate the visible emissions any time visible emissions are observed and document the observation and the corrective action. (Taking corrective action can include, but is not limited to, preparing a work order, ordering parts, shutting down the unit, or completing the repair that eliminates the visible emissions), and 4) conduct weekly functional integrity inspections (see item A.4). In addition to the opacity limit and its monitoring requirements, these emission units are subject to the O&M requirement (see item A.1) and some units are subject to a particulate limit and monitoring requirements (see item A.2).

   Ecology calls the requirement to document visible emissions any time visible emissions are observed and to take corrective action within 24 hours the "find-it-fix-it" approach. The "find-it-fix-it" approach and the requirement to conduct weekly functional integrity inspections in combination with the requirement to comply with the O&M requirements in Condition A1 are considered the surrogate means to demonstrate compliance with the opacity limit. This approach is called gapfilling (see the discussion of "gapfilling" in the introduction above). The surrogate requirements are more stringent and provide more of an environmental benefit than conducting EPA Method 9 opacity readings which offer a determination of compliance for only one point in time. The environmental benefit of compliance with these permit conditions is gained from consistent and frequent monitoring, preventive maintenance, better O&M practices, and early corrective actions.

4. **Functional integrity inspections (Conditions B5, C13, C14, D3, D5, D7, D10, and E5):** The requirement to conduct weekly functional integrity inspections has been added as a "gapfilling" condition for each emission unit (see the discussion of "gapfilling" in the introduction above). The minimum requirements of this inspection for a baghouse include a visual check of the following parameters: visible emissions (these visible emission observations do not require EPA Method 9 opacity readings), leaks in the ductwork and housing, excess vibration, pressure drop, and site glass readings (in locations where they are installed). Records of these inspections, pressure drop, site glass readings, and visible emissions, and any resulting corrective actions must be maintained. Intalco is also required to take corrective action within 24 hours if problems are observed during the inspections. Taking corrective action can include, but is not limited to, preparing a work order, ordering parts, shutting down the unit, or completing the repair that eliminates the problem.

   Intalco is also required to conduct weekly functional integrity inspections on uncontrolled sources or sources that have controls other than baghouses (Pitch Fume Treatment System, Remelt Furnace, Inert Dross Cooling System, Magneto

Hydrodynamic Horizontal Casting Facilities, and the Homogenization Furnace). Intalco is required to check all of these sources for visible emissions and some of them for other parameters. Intalco must also take corrective action and maintain records of the observations and the corrective actions taken.

The functional integrity inspections will provide an indicator of continuous compliance. The information gathered during the functional integrity inspections is used as a surrogate for actual testing to determine if the equipment is operating within specifications outlined in Intalco's standard operating procedures. The requirements to conduct functional integrity inspections, to comply with the operation and maintenance requirement, and to take corrective action when visible emissions or other problems are observed are ongoing requirements which provide the assurance that the equipment is operated and maintained properly and kept in compliance. These requirements provide a compliance tool that is frequent, thorough, and consistent versus a source test or opacity reading that indicates whether Intalco is in compliance with a permit limit at only one point in time.

Order DE00AQIS-833 (Pitch Fume Treatment System) was issued on April 10, 2000.

Condition B1 (Particulate (as PM_{10}) limit and monitoring): As in Condition 2.b of the previous order, Condition B1 of the CO requires Intalco to comply with a limit of 2.36 pounds PM_{10}/hour. Intalco will assume (in their calculations) that all collected particulate matter is PM_{10}.

Condition 4 of the previous order required Intalco to conduct semi-annual (every six months) source tests. Intalco requested that Ecology reduce the semi-annual source testing frequency to once every two years.

Ecology agreed to this request based on two criteria: 1) historical source test data (see Table 1 in the Appendix) demonstrates that the average PM_{10} mass loading rate (0.79 pounds per hour=3.4 tons per year) operating at full production (8760 hours per year=24 hours a day/7 days a week) is 33% of the PM_{10} limit (2.36 pounds per hour=10.33 tpy), and 2) Intalco is required to conduct daily visible emission checks (per Condition B5 of the CO) as a surrogate for more frequent source testing.

Condition B2 (Opacity limit and monitoring requirements): In Conditions 2.a and 3 of the previous order, Intalco is required to comply with a 5% opacity limit and to determine compliance with that limit by conducting daily visible emission inspections. Condition B2 of the CO requires Intalco to conduct EPA Method 9 or another EPA approved method for opacity readings upon Ecology's request, to document visible emissions any time they are observed, and to take corrective action any time visible emissions are observed. See the discussion about opacity limits and monitoring requirements in item A.3 above. Condition B7 (discussed below) includes the requirement to conduct daily visual checks for visible emissions.

Condition B3 (POMs limit and monitoring requirements): Intalco has chosen to accept the

0.54 lb/hour POM limit (the first option given in the CO for determining a POM limit) therefore the second option was deleted.

Condition 4 of the previous order required semi-annual POM source tests to be conducted after the initial source tests were completed. Intalco requested that Ecology reduce the semi-annual POM source test frequency to once every 2 years and any time that Ecology requests a source test. Ecology agreed to this request based on historical source test data (see Table 1 in the Appendix) that demonstrates that the average POM mass loading rate (0.28 pounds per hour or 1.2 tons per year) is 52% of the POM limit (0.54 pounds per hour or 2.36 tons per year) operating at full production.

Condition B4 (Operation and Maintenance Manual): The requirements of condition B4 of the CO are the same requirements as those in Condition 5 in the previous order.

Condition B5 (Functional Integrity Inspection): Condition B5 of the CO requires Intalco to monitor coke and air flow continuously (per the MACT requirements in 40 CFR 63.848 (f) (1)), to conduct a daily visual check for visible emissions (per the MACT requirements in 40 CFR 63.848 (g)), to conduct a weekly system functional integrity inspection, take corrective action (CA) when visible emissions or other problems are observed, and maintain records of observations and any CA taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

The following requirements from the previous order have been replaced by requirements in the CO that are more stringent, as described above:

Condition 3 **of the previous order contained requirements to conduct daily inspections for visible emissions to comply with the opacity limit for the dry scrubber exhaust stack. This Condition has been replaced with Conditions B2 and B5 of the CO.**

The following requirements from the previous order were not included in the CO because the requirements have been completed or have been eliminated because there is enough historical data to justify eliminating the requirement:

Condition 4 (Startup and PAH compliance tests): Intalco was required to conduct a start-up source test for particulate and POM and submit the results to Ecology. Intalco has complied with that requirement.

Condition 4 of the previous order also required Intalco to conduct annual PAH source tests after the initial source tests were completed. Intalco requested that Ecology eliminate the requirement to conduct PAH source tests.

Ecology agreed to this request based on the following criteria: 1) POMS and PAHs were monitored before Maximum Available Control Technology (MACT) requirements were promulgated. The MACT rules did not establish PAH limits or require source testing, instead MACT requires Intalco to conduct parametric monitoring (see condition A3.a). The Pitch Fume Treatment System (PTFS) is the technology determined by EPA to meet the MACT requirement.

Intalco installed and operates a PTFS to control POM emissions in compliance with MACT requirements. PAH emissions are a subset of POMs controlled by the PFTS. Intalco's source test data (see Table 1A in the Appendix) demonstrates that the PAH emission rates were <0.5% of the POM emission rates. 2) Intalco is required to monitor POM emissions by conducting source tests every two years. PAHs are regulated under "Controls for New Sources of Toxic Air Pollutants" (WAC173-460). Intalco was required to quantify PAH emissions and demonstrate ambient impact compliance in accordance with WAC173-460-050(4)(c) and WAC 173-460-080 respectively. Ambient impact compliance is demonstrated by comparing the quantified PAHs with the 0.00048 $\mu g/m^3$ Acceptable Source Impact Level (ASIL) in WAC173-460-150 Table III. Ecology included the requirement to conduct PAH source testing in the previous order to demonstrate compliance with the WAC 460 requirements. Intalco demonstrated with data from their first source test that the maximum PAH concentration outside the property boundaries is $2.7x10^{-5}$ $\mu g/m^3$ (<6 % of the PAH ASIL (4.8E-04 $\mu g/m^3$).

Condition 5 (Establish Operational Limits in accordance with MACT requirements): After the startup phase of the project, Intalco was required to conduct sufficient emissions tests to determine: a).that the system met the PM and POM limits; b) the operational rate limit for minimum coke injection in accordance with 40 CFR 63.848, and c) The operational limit for minimum exhaust gas flow in accordance with 40 CFR 63.848 (f). Intalco has complied with those requirements.

Condition 6 (Air quality impact modeling): Intalco was required to use a dispersion model to determine the impact of the emissions from the PFTS. Intalco has complied with that requirement.

Order DE 89-I131 (Potlines A, B, and C Primary and Secondary Control Systems) was issued on April 21, 1995.

Conditions C6, C7, C10, C11, C14, C17, and C19: These conditions were deleted from the CO because Intalco reports the emission rates for the respective pollutants in the monthly air monitoring reports. Because these seven conditions were deleted, the numbering sequence of the conditions changed from "C1-C19" to "C1-C15". None of the conditions that remain were changed except for Condition C15 (see discussion that follows).

Condition C13(Primary Control System Functional Integrity Inspections): Condition 20 requires Intalco to conduct a daily functional integrity inspection of the potroom baghouses that, at a minimum, includes a visual check of the following parameters: visible emissions, leaks in ductwork and housing, excess vibration, pressure drop, and sight glass readings. This condition was added to be consistent with the gapfilling requirements for the other emission units in the CO. See the discussion about the Functional Integrity Inspection in item A.4 above.

Condition C14 (Secondary Control System Functional Integrity Inspections): Condition C21 requires Intalco to conduct a weekly functional integrity inspection of all the pot hoods. During that inspection, Intalco is required to classify the condition of each hood as good, fair, or poor and direct hood repair crews to begin the repair process for the poor condition hoods during their first shift after the inspection. Intalco is required to repair hoods classified as fair within 15 days. Intalco is required to conduct a daily functional integrity inspection of the potroom wet

scrubbers that, at a minimum, includes a visual check of the following parameters: visible emissions (per 40 CFR 63.8 MACT), and if processing adequate volumes of water and air (per Condition 40 CFR 60.848(f)(5)(ii) (Primary Aluminum MACT)). This condition was added to be consistent with the gapfilling requirements for the other emission units in the CO. See the discussion about the Functional Integrity Inspection in item A.4 above.

Order DE 94-AQ-I001 (Inert Gas Dross Cooler System) was June 11, 1994.

Condition D1 (Dross storage): Condition D1 of the CO contains the same requirement, to limit storage of dross to only the casthouse building extension, as did Condition 3 of the previous order.

Condition D2 (Opacity limit and monitoring requirements): Condition 1.a of the previous order required Intalco to comply with "no visible emissions shall be present anywhere in the inert gas dross cooling hood system after the initial argon flushing period". Condition 1.b required Intalco to comply with "no visible emissions shall be generated from or escape from the cast house bunker extension". Condition D2 of the CO replaces those conditions and requires Intalco to conduct EPA Method 9 or another EPA approved method for opacity readings upon Ecology's request, to document visible emissions any time they are observed, and to take corrective action any time visible emissions are observed. See the discussion about opacity limits and monitoring requirements in item A.3 above.

Condition D3 (Functional Integrity Inspection): Condition D3 of the CO requires Intalco to conduct a weekly functional integrity inspection, record the results of the inspection, and to take corrective action as soon as practical but within 24 hours if visible emissions are observed and record the corrective actions taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

The following requirements from the previous order have been replaced by requirements in the CO that are more stringent as described above:

Condition 4.b: "Operation and maintenance of all process and control equipment shall be consistent with good air pollution practices, i.e., pans of dross will be moved under the inert gas dross cooling hoods as soon as is practicably possible." Conditions A1 and D3 of the CO replaced this requirement.

Condition 4.c: "Operation of the equipment must be conducted in compliance with all data and specifications submitted as part of the notice of construction application unless otherwise approved by the Department". Conditions A1 and D3 of the CO replaced this requirement.

The following requirements from the previous order were not included in the CO because the requirements have been completed and are no longer applicable:

Condition 2: Intalco was required to remove the existing salt barrel furnace from service and dismantle it. Intalco has complied with that requirement.

Condition 4.a (Developing O&M Manuals): Intalco was required to develop O&M manuals. Intalco has complied with that requirement.

Condition 5 (Approval order void if construction is not started): Intalco was required to start construction within 180 days after the approval order was issued. Intalco has complied with that requirement.

Order DE 96-AQ-I054 (Magneto Hydrodynamic (MHD) Horizontal Casting Facility) was issued on July 18, 1996.

Condition D4 (Nitrogen oxide limit and monitoring): Condition D4 of the CO contains the same NOx limit of 83 ppm. Intalco requested a reduction in monitoring frequency from quarterly to once every five year period of operation. Ecology agreed to reduce the monitoring to a source test on each furnace at startup with subsequent alternating source tests on a different furnace once every five years based on the following criteria: 1) The average NOx concentration of the five source tests conducted on the unit while it was operating (see the data in Table 2 in the Appendix) is 49 ppm, 59% of the 83 ppm NOx limit.

Condition D5 (Functional Integrity Inspection): Condition D5 of the CO requires Intalco to conduct a weekly functional integrity inspection, record the results of the inspection, and to take corrective action as soon as practical but within 24 hours if visible emissions are observed and record the corrective actions taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

Order DE 97-AQ-I020 (Dross and Silicon Storage Baghouse) was issued on May 20, 1997.

Condition D6 (Particulate limit and monitoring): As in the conditions of the previous order, Intalco is required to comply with a 0.005 grains/disc limit. Intalco requested that Ecology reduce the semi-annual source testing frequency to once every 5 years and at anytime that Ecology requests a source test.
Condition D6 requires Intalco to conduct a source test upon request. Ecology's justification for reducing the source testing frequency is based upon an evaluation of historical source test data (see Tables 3 and 4 in the Appendix). The average emission rate of nine source tests conducted since August 1997 was 0.000913 grains/dscf (less than 20% of the 0.005 emission limit). The source test data is collected only when dross loading occurs in the building. During a typical year, dross is loaded for approximately 90 hours. The average grain loading from source testing was 0.000913 grains per dscf. Using this concentration and assuming that loading occurred 90 hours per year, the annual mass loading rate estimate for loading operations is 0.02 tons per year. Intalco operates the baghouse 24 hours per day, 7 days per week, regardless of dross loading operations. Assuming that dross loading (at a concentration of 0.000913 grains per dscf) occurs full time (8760 hours per year), the estimated annual mass loading rate would be 0.16 tons PM per year (well below the 0.75 ton per year level considered to be insignificant per WAC 173-401-530(4)(e)).

Condition D7 (Functional Integrity Inspection): Condition D7 of the CO requires Intalco to conduct a weekly functional integrity inspection, record the results of the inspection, and to take corrective action as soon as practical but within 24 hours if visible emissions are observed and record the corrective actions taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

The following requirements from the previous order have been eliminated because there is enough historical data to justify eliminating the requirement:

Logbook of Operations: **The previous order required Intalco to maintain a logbook for truck loading and unloading. This condition and the requirement to limit hours of dross truck unloading have been eliminated because the source test data demonstrates that the permit limits would be met if Intalco operated full time.**

Baghouse Catch and Hours of Operation: **The previous order had limits on the concentration of manganese, chromium, copper, and calcium oxide in the baghouse catch. Intalco was required to conduct quarterly monitoring. The previous order also limited the hours of operation of dross truck loading to 4.48 hours for every 24 hours. Intalco's notice of construction order required that each of these pollutants (in the previous order) be <5.0% concentration in the baghouse catch. Ecology required the limitation on the dross truck loading to ensure that the small quantity emission rates for the pollutants were not exceeded for the baghouse. Quarterly source test data for the baghouse collected by Intalco over the last six years is provided in Table 4 in the Appendix. The average percentage of calcium oxide, manganese, chromium, and copper (0.88 %,0.06%, 0.006%, and 0.006% respectively) are much lower than the 5.0% limit. If the maximum measured percentages reported in Table 4 for calcium oxide, manganese, chromium, and copper (2.0%, 0.35%, 0.032%, and 0.009% respectively) are used to determine the maximum emissions when the unit is operating 8760 hours per year, the maximum emissions would not exceed the small quantity emission rates for each pollutant (see the comparison in the table below). Ecology has approved Intalco's request to eliminate this requirement, based on these low estimated emission rates.**

Toxic Air Pollutant (TAP)	Maximum TAP Emission Rate	Small Quantity Emission Rate
Calcium oxide	**0.004 lb/hr**	**0.02 lb/hr**
Manganese	**0.00007 lb/hr**	**0.02 lb/hr**
Chromium	**0.00000652 lb/hr**	**0.02 lb/hr**
Copper	**0.0000016 lb/hr**	**0.02 lb/hr**

Order DE 98-AQ-I029 (Homogenization Furnace) was issued on May 27, 1998.

Condition D8 (Nitrogen oxides limit and monitoring): **The emission limit for NO_x remains the same in the CO as it was in Condition 2.a of the previous order. Intalco requested a reduction in monitoring frequency from annual source testing to once every five years. The historical source test data (see Table 5 in the Appendix) demonstrated that the average NOx concentration of six source tests conducted since February 1999 was 67.5 ppm (81% of the 83**

ppm emission limit). Ecology's typically allows a monitoring reduction only if the average emission rate is <75% of the respective limit. Intalco is required to continue annual source testing and will be allowed to reduce the frequency to once every five years if three consecutive source tests demonstrate emission rates <62 ppm.

Condition D9 (Opacity limit and monitoring requirements): Condition 2.b of the previous order requires Intalco to comply with a 5% opacity limit. The previous order did not specify monitoring requirements. Condition D9 of the CO requires Intalco to conduct EPA Method 9 or another EPA approved method for opacity readings upon Ecology's request, to document visible emissions any time they are observed, and to take corrective action any time visible emissions are observed. See the discussion about opacity limits and monitoring requirements in item A.3 above.

Condition D10 (Functional Integrity Inspection): Condition D10 of the CO requires Intalco to conduct a weekly functional integrity inspection, record the results of the inspection, and to take corrective action as soon as practical but within 24 hours if visible emissions are observed and record the corrective actions taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

The following requirements from the previous order have been replaced with requirements in the CO that are more stringent, as described above:

Condition 2.b: The previous order contained the 5% opacity limit, but did not require monitoring. Condition D9 of the CO replaces this requirement.

Order DE 89-55 (Autogenous Mill Baghouse) was issued on June 5, 1989.

Condition E1 (PM limit and monitoring): As in Condition 3.a and 4 of the previous order, Intalco is required to comply with a mass loading limit of 5.0 tons per year. The previous order did not specify a PM test method. Condition E1 of the CO requires Intalco to use EPA Method 5 to monitor PM emissions.

Intalco requested that Ecology reduce the semi-annual source testing frequency to once every 5 years and upon Ecology's request. Condition E1 requires Intalco to conduct a source test once every five years and upon Ecology's request. Ecology's justification for reducing the source testing frequency is based upon an evaluation of historical source test data (see Table 6 in the Appendix). The average PM emission rate of 28 source tests conducted since May 1998 was 1.46 tons per year (less than 30% of the 5.0 tpy emission limit). Ecology eliminated the requirement to calculate the emissions by using a 12-month rolling average because the frequency of source testing has been reduced to once every five years.

Condition E2 (PM limit and monitoring): As in Condition 3.a and 4 of the previous order, Intalco is required to comply with a particulate limit of 0.01 grains per/dscf. The previous order did not specify a PM test method. Condition E2 of the CO requires Intalco to use EPA Method 5 to monitor PM concentration.

Intalco requested that Ecology reduce the semi-annual source testing frequency to once every 5

years and at anytime that Ecology requests a source test. Condition E2 requires Intalco to conduct a source test once every five years and upon Ecology's request. Ecology's justification for reducing the source testing frequency is based upon an evaluation of historical source test data (see Table 6 in the Appendix). The average PM concentration for 28 source tests conducted since May 1998 was 0.003 grains/dscf (30% of the 0.01 grains/dscf limit).

Condition E3 (Total Fluoride limit and monitoring): As in Condition 3.b of the previous order, Intalco is required to comply with a fluoride mass loading limit of 2.7 tons per year. The previous order required Intalco to determine fluoride concentrations by quarterly analysis of the fluoride content of the rod shop crust. Intalco requested that Ecology reduce the quarterly analysis to source testing once every 5 years and at anytime that Ecology requests a source test. Condition E3 requires Intalco to conduct a source test using EPA Method 5/13B once every five years and upon Ecology's request. Ecology's justification for reducing the source testing frequency is based upon an evaluation of historical source test data (see Table 6 in the Appendix). The average TF emission rate for 28 source tests conducted since May 1998 was 0.55 tpy (20% of the 2.7 tpy limit). Ecology eliminated the requirement to calculate the emissions by using a 12-month rolling average because the frequency of source testing has been reduced to once every five years.

Condition E4 (Opacity limit and monitoring): Condition 3.d of the previous order required Intalco to comply with a 5% opacity limit and stated that "no visible emissions shall be present elsewhere in the system". Condition E4 of the CO requires Intalco to conduct EPA Method 9 or another EPA approved method for opacity readings upon Ecology's request, to document visible emissions any time they are observed, and to take corrective action any time visible emissions are observed. See the discussion about opacity limits and monitoring requirements in item A.3 above.

Condition E5 (Functional Integrity Inspection): Condition E5 of the CO requires Intalco to conduct a weekly functional integrity inspection, record the results of the inspection, and to take corrective action as soon as practical but within 24 hours if visible emissions are observed and record the corrective actions taken. See the discussion about the Functional Integrity Inspection in item A.4 above.

The following requirements from the previous order have been replaced by requirements in the CO that are more stringent, as described above:

Condition 2: **The previous order contained a limitation on the weekly hours of operation (≤40hours/week). Ecology determined that a limit on the hours of operation is not warranted because the actual source test data (provided in Table 6 in the Appendix) demonstrates that Intalco would not exceed the 5.0 tpy limit if they operated the Autogenous Mill Baghouse continuously (24hours/day and 7/week).**

Condition 3.c: **"Increased emission of any other pollutants shall be negligible". Conditions A1 and E5 of the CO have replaced this requirement.**

Condition 5: **The previous order required Intalco to conduct quarterly monitoring of the**

"rod shop crust" to determine fluoride concentrations. Intalco is required to monitor the emissions of fluoride more directly by using EPA Method 5/13B to conduct a source test once every five years as required in Condition E3 above.

<u>The following requirements from the previous order were not included in the CO because the requirements have been completed and are no longer applicable</u>:

Condition 1 (BACT for emission control): Intalco was required to use BACT for emission control. Intalco has complied with this requirement.

Condition 4 (Compliance testing within 90 days of startup): Intalco was required to complete compliance testing for particulate within 90 days of startup of the system. Intalco has complied with that requirement.

Condition 6 (Approval shall become void if construction not started): Intalco was required to start construction by June 1, 1990. Intalco has complied with that requirement.

APPENDIX
(HISTORICAL SOURCE TEST DATA SUMMARIES)

TABLE 1										
PITCH FUME TREATMENT SYSTEM (AOP ID 316; Constructed under Approval Order DE 00AQ-IS833 issued on April 10, 2000 and consolidated into Order DE02AQIS-3967 issued on October 22, 2003, Intalco has been operating the PFTS since January 15, 2001)										
Date of Source Test	**PM (semiannual source testing)**						**POM (semiannual source testing)**			
	PM_{10} (lb/hr)	**Limit (lb/hr)**	**PM (grains/dscf)**	**Limit (grains/dscf)**	**PM (lb/hr)**	**Limit (lb/hr)**	**POM (lb/hr)**	**Limit (lb/hr)**	**POM (lb/ton of green paste)**	**Limit (lb/ton of green paste)**
2/8/01	0.826	2.36	0.001	0.1	NR	NL	0.337	0.54	NR	NL
12/13/02	0.91	2.36	0.002	0.1	0.88	NL	0.154	0.54	0.0046	NL
6/25/03	0.625	2.36	0.002	0.1	0.559	NL	0.355	0.54	0.0106	NL
AVERAGE	0.79	2.36	0.002	0.1	0.720	NL	0.282	0.54	0.008	NL
Note: Source testing was not conducted from May 2001 through April 2002 because Intalco operations affecting this unit were curtailed completely due to poor market conditions and high energy costs.										
NR=Not Reported										
NL=No Limit										

TABLE 1A				
INTALCO'S PITCH FUME TREATMENT SYSTEM (continued) POM and PAH SOURCE TESTS				
Date of Source test	**02/08/01**		**12/13/02**	
TAPs that are considered PAHs in WAC 460-050(4)(c)	**(grains/dscf)**	**(lb/hour)**	**(grains/dscf)**	**(lb/hour)**
Benzo(a)anthracene	1.10E-07	4.30E-05	3.55E-07	1.31E-04
Benzo(a)pyrene*	5.50E-08	2.20E-05	5.50E-08	2.20E-05
Benzo(b)fluoranthene	1.10E-07	4.30E-05	1.73E-07	6.40E-05
Benzo(k)fluoranthene	8.80E-08	3.50E-05	1.39E-07	5.10E-05
Chrysene	4.33E-07	1.70E-04	8.45E-07	3.10E-04
Dibenz(a,h)anthracene*	5.50E-08	2.20E-05	5.50E-08	2.20E-05
Indeno(1,2,3,c,d)pyrene*	5.50E-08	2.20E-05	5.50E-08	2.20E-05
Total PAH	9.06E-07	3.57E-04	1.68E-06	6.22E-04
Total POM	8.58E-04	3.37E-01	4.18E-04	1.54E-01
Total PAH as a % of Total POM	1.06E-01	1.06E-01	4.01E-01	4.04E-01
*The source test reports stated "ND indicates that the PAH was "not detected" and was below the estimated Quantitation Limit of 1.0 microgram (µg), the concentration of 5.5E-08 grains/dscf, and rate of 2.2E-05 pounds/hour respectively". These values were substituted for ND in the data above.				

Table 2						
MAGNETO HYDRODYNAMIC (MHD) HORIZONTAL CASTING FACILITIES (AOP ID 220a & b and 221 a&b. Constructed under Approval Order DE96AQ-IO54 issued on July 18, 1996 and consolidated into Order DE02AQIS-3967 issued on October 22, 2003. Intalco operated the MHD furnaces from December 1996 until September 1997. The MHD furnaces have not been source tested since their operation was stopped.)						
DATE (quarterly source testing)	**NOx Emission Concentration in PPM at 3% O_2**					
	Run 1	**Run 2**	**Run 3**	**Run 4**	**Average**	**Limit**
Dec-96	64	58			61	83
Sep-96	82.6	60	47.9	75.5	67	83
Feb-97	44.4	41.6			43	83
May-97	25.3	53			39	83
Sep-97	40	25.7			33	83
AVERAGE					49	83

Table 3						
Dross and Silicon Storage Building Baghouse (AOP ID 315; 55,000 acfm Baghouse. Constructed under Approval Order DE 97AQ-I020 issued on June 4, 1997 and consolidated into Order DE02AQIS-3967 issued on October 22, 2003, Intalco has been operating the Dross and Silicon Storage Building Baghouse since August 1997)						
DATEOF SOURCE TEST (semi-annual source tests)	**Test Results (grains/dscf)**	**Baghouse Exhaust (average dscf/min)**	**Typical Annual Hours of Loading Operations**	**Testing Results (lbs/hour)**	**Actual Loading Particulate Emissions (tpy)**	**Emissions if Loading Operated Full Time (8760 hours/year) (tpy)**
Aug-97	0.0012	47671	90	0.49	0.02	2.15
Apr-98	0.00071	46623	90	0.28	0.01	1.24
Oct-98	0.0011	49927	90	0.47	0.02	2.06
Apr-99	0.00056	48263	90	0.23	0.01	1.02
Sep-99	0.00048	47237	90	0.19	0.01	0.85
Apr-00	0.00116	50497	90	0.50	0.02	2.20
Sep-00	0.00128	47592	90	0.52	0.02	2.29
May-01	0.00075	44079	90	0.28	0.01	1.24
May-02	0.00098	48752	90	0.41	0.02	1.80
Average	0.000913333	47849	90	0.38	0.02	1.65
Note: Source testing was not conducted from June 2001 through April 2002 because Intalco operations affecting this unit were curtailed completely due to high energy costs.						

Table 4				
Percent TAPS in Dross and Silicon Baghouse Catch (%) (Limit is <5.00% of the baghouse catch)				
DATE OF SOURCE TEST (quarterly source testing)	**Calcium**	**Mangenese**	**Chromium**	**Copper**
Aug-97	2.0	0.28	0.0027	0.0049
Jul-98	0.65	0.014	0.003	0.007
Sep-98	0.27	0.02	0.002	0.003
Dec-98	0.57	0.014	0.004	0.005
Mar-99	1.18	0.016	0.003	0.006
Apr-99	1.06	0.017	0.003	0.006
Jul-99	0.6	0.04	0.006	0.006
Oct-99	0.6	0.033	0.005	0.005
Oct-99	0.66	0.035	0.005	0.006
Feb-00	0.6	0.033	0.005	0.005
Jun-00	0.68	0.016	0.002	0.006
Sep-00	0.71	0.026	0.004	0.007
Jan-01	0.9	0.35	0.01	0.008
May-01	0.89	0.138	0.032	0.006
Mar-02	1.28	0.095	0.012	0.005
May-02	1.28	0.014	0.004	0.003
3rd Qtr -02	1.41	0.028	0.005	0.004
4th Qtr -02	1.22	0.019	0.004	0.004
1st Qtr -03	0.25	0.01	0.001	0.009
Average %	**0.88**	**0.06**	**0.006**	**0.006**
Minimum %	**0.25**	**0.010**	**0.001**	**0.003**
Maximum %	**2.00**	**0.350**	**0.032**	**0.009**

Table 5					
Homogenization Furnace (AOP ID 314; Constructed under Approval Order DE 98AQ-I029 issued on May 27, 1998 and consolidated into Order DE02AQIS-3967 issued on October 22, 2003, Intalco has been operating the homogenization furnace since January 5, 1999)					
DATE OF SOURCE TEST (annual source testing)	**NOx Emission Concentration (ppm at 3% O_2)**				**Limit (ppm)**
	RUN 1	**RUN 2**	**RUN 3**	**AVG Test Result (ppm)**	
Feb-99	**61.5**	**61.8**	**62.2**	**61.83**	**83**
Feb-00	**66.5**	**68.6**	**75.7**	**70.27**	**83**
Jan-01	**80**	**106**	**72**	**86.00**	**83**
Feb-01	**61**	**57**	**60**	**59.33**	**83**
Feb-02	**68**	**64**	**65**	**65.67**	**83**
Apr-03	**64**	**61**	**60**	**62.00**	**83**
AVERAGE				**67.52**	**81% of the limit**
NR=Not Reported					

Table 6					
Intalco's Autogenous Mill (AOP ID 209; Constructed under Approval Order DE89-55 issued on June 5, 1989 and consolidated into Order DE02AQIS-3967 issued on October 22, 2003, Intalco has been operating the Autogenous Mill since the last quarter of 1989)					
Date of source test (semi-annual source testing)	Particulate Emissions[1]		Fluoride Emissions[2] (quarterly testing)		Flow Rate
	grains/dscf	tpy	% Fluoride in the Rod Crust[3]	tpy	SCFM
5/27/98	0.00454	1.997	0.34	0.671	NR[4]
5/28/98	0.00511	2.253	0.29	0.656	NR
6/2/98	0.00883	3.878	0.30	1.179	NR
6/15/99	0.01105	4.492	0.30	1.363	45567
6/21/99	0.00387	1.698	0.24	0.411	49197
6/23/99	0.00402	1.768	0.28	0.491	49333
11/24/99	0.00122	0.57	0.31	0.176	52359
12/10/99	0.00221	0.98	0.62	0.603	49613
1/17/00	0.00288	1.2	0.28	0.336	46610
4/25/00	0.00076	0.36	2.67	0.96	52487
5/23/00	0.0002	0.1	0.30	0.03	52343
6/16/00	0.00091	0.41	0.41	0.17	50721
7/26/00	0.00115	0.49	0.24	0.12	47912
8/28/00	0.00159	0.75	0.36	0.27	52568
9/19/00	0.0009	0.4	0.33	0.13	50808
10/26/00	0.00594	2.82	0.69	1.94	53316
11/21/00	0.00136	0.65	0.80	0.52	53052
12/12/00	0.00133	0.63	0.62	0.39	52972
01/16//01	0.00922	3.22	0.37	1.2	39160
2/23/01	0.00566	2.2	0.26	0.58	43704
3/16/01	0.00159	0.64	0.30	0.19	45230
4/27/01	0.00281	1.09	0.51	0.552	43684
5/11/01	0.00259	1.01	0.39	0.394	43861
6/20/01	0.00128	0.57	0.24	0.134	50280
5/16/02	0.00971	4.28	0.12	0.52	47311
7/16/02	0.00304	1.24	0.18	0.22	45580
1/15/03	0.00111	0.53	0.68	0.36	53180
2/10/03	0.00146	0.72	1.33	0.96	55119
AVERAGE	**0.00344**	**1.46**	**0.49**	**0.55**	**49039**
MAXIMUM	**0.01105**	**4.49**	**2.67**	**1.94**	**55119**
MINIMUM	**0.0002**	**0.1**	**0.12**	**0.03**	**39160**
ORDER LIMIT	**0.01**	**5.00**	**NL[5]**	**2.7**	**NL**

[1]Calculated assuming that the autogenous mill is operating continuously (8760 hours per year)
[2]Intalco was required by condition 5 of Order DE 89-55 to measure the Fluoride content of the rod crust on a quarterly schedule. The following formula was used to calculate the fluoride emissions: Fluoride emissions (tpy)=(%Fluoride in the rod crust)x(particulate in tpy)
[3]These values were derived by using the following formula: % Fluoride in Rod Crust = Fluoride emissions (column e)/Particulate emissions (column c)
[4]NR=Not Reported [5]NR=Not Reported

DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING THE OPERATION OF THE ALUMINUM REMELT FURNACE AT ALCOA PRIMARY METALS INTALCO WORKS IN FERNDALE, WASHINGTON	)))))	ORDER NO. 1070 – AQ04

To: Alcoa Primary Metals Intalco Works
Post Office Box 937
Ferndale, Washington 98248

This is a Notice of Construction Approval Order issued in accordance with RCW 70.94.152 and WAC 173-400-110. The terms and conditions of Order No. DE03-AQIS-5671 are hereby rescinded in their entirety and replaced by the terms and conditions of this Order. The terms and conditions of this Order are applicable to only the existing remelt furnace (Emission Unit #217).

Intalco submitted an e-mail message (dated March 31, 2004) requesting that Ecology extend two deadlines contained in Order DE 03AQIS-5671 (issued on July 30, 2003). The first deadline, in Condition 5.c of Order DE 03AQIS-5671, requires Intalco to install a continuous opacity monitor (COM) on the remelt furnace by April 15, 2004. The second deadline, in Condition 1.c of Order DE 03AQIS-5671, requires Intalco to make the modifications recommended in the Engineering study (completed in compliance with Condition 1.b of the order) by July 01, 2004. Intalco requested an extension of the deadlines due to delays resulting from the uncertainties of business conditions and lack of availability of critical parts for the modifications.

This Order extends the deadlines for the modifications to the remelt furnace and the installation of the COM until August 01, 2004. This order also continues to limit the volume of natural gas and the amount of aluminum scrap that is melted in order to control nitrogen oxide (NOx), particulate (PM), and carbon monoxide (CO) emission levels until the remelt furnace is modified and new limits and monitoring requirements are established based on performance tests that will be conducted on the modified remelt furnace system. The conditions of Order DE 03AQIS-5671 that have been completed to Ecology's satisfaction have not been included in this order. All the other terms and conditions of Order DE 03AQIS-5671 were included in this Order. The terms and conditions of this Order will assure compliance with the National Ambient Air Quality Standards, and applicable Acceptable Source Impact Levels (ASIL), and will assure that Intalco does not trigger PSD requirements.

BACKGROUND INFORMATION

The Intalco Aluminum Corporation operates a primary aluminum smelter near Ferndale, Washington. Ecology received a Notice of Construction (NOC) Application from Intalco on September 17, 2002. Under this application, Intalco wanted to convert two existing MHD aluminum holding furnaces (Emission Units #221a and #221b) into two aluminum remelt furnaces and to modify Order No. DE 93AQ-I089 for the existing aluminum remelt furnace. Following review and discussions with Ecology, the NOC application was revised. A final revision of the NOC application was received on December 2, 2002. This application was deemed to be complete in January 2003. Order No. DE 02AQIS-5106 approving the proposed projects was issued on February 11, 2003.

On May 6, 2003, Intalco submitted a letter to Ecology requesting that Ecology revise the opacity monitoring requirements in Order No. DE 02AQIS-5106. The letter stated that because of the economic impact of the impending September 2003 curtailment, Intalco would not have the resources available within the timeframe outlined in Order No. DE 02AQIS-5106 to engineer, obtain funding, and operate and maintain the continuous opacity monitors (COM) required in the order. In response to Intalco's request, Ecology issued Order No. DE 03AQIS-5540 (on May 28, 2003) modifying the opacity monitoring requirement to include a 10-day visible emission monitoring program and if no emissions were observed, to continue visible emissions monitoring on a weekly basis, and extended the COM installation requirement until April 15, 2004. Order No. DE 03AQIS-5540 rescinded and replaced Order No. DE 02AQIS-5106.

During the first source test of the remelt furnace, conducted on April 8, 2003, Intalco discovered that NOx concentrations were much higher than the 65 ppm NOx at 3% oxygen emission limit in condition 2.a) of Order No. DE 03AQIS-5540. Following review of the test report and validation of the results, Intalco immediately notified Ecology and shut down operation of the remelt furnace.

Intalco's preliminary investigation discovered that the low NOx system installed in the remelt furnace was subject to temperature limitations that prevent the low NOx injectors from operating during the entire melt cycle. The low NOx operational mode is triggered by a thermocouple located in the coldest portion of the furnace. The coldest portion of the furnace does not reach the operating range of the low NOx injectors for the majority of the melt cycle resulting in elevated NOx emissions.

Ecology reviewed the impacts of the increase in NOx emissions on the Ambient Source Impact Level (ASIL) per WAC 173-460, National Ambient Air Quality Standard (NAAQS), and Prevention of Significant Deterioration (PSD). The modeled NOx concentration at the nearest facility boundary exceeded the ASIL. Therefore, the background ambient NOx concentration was added to the modeled NOx concentration from the remelt furnace at the nearest facility boundary and compared the total value to the NAAQS. The combined NOx concentration was 55% of the NAAQS. An emission factor was calculated based on the maximum source test concentration of NOx. Actual gas usage and the calculated emission factor were used to calculate the annualized NOx emissions. The annual NOx emissions for the remelt furnace were 57% of the PSD threshold for NOx.

Intalco requested that Ecology issue an administrative order that would allow Intalco to continue operation of the remelt furnace under operational limits imposed in the order that assure that Intalco does not trigger the PSD threshold for NOx or exceed the NAAQS. On July 25, 2003, Intalco also notified Ecology that the MHD furnaces (Emission Units 221a and 221b) will not be modified for remelt service and requested that the terms and conditions applicable to the modification of these sources be rescinded.

On July 30, 2003, Ecology issued Order DE03-AQIS-5671. Among other ongoing requirements, Order DE03-AQIS-5671 required Intalco to reevaluate BACT, conduct source tests, and conduct an engineering study of the furnace and burner systems to determine the optimum mode of operation to minimize NOx emissions.

Intalco submitted the BACT Reevaluation on August 29, 2003 and the Engineering Study on November 26, 2003. The BACT reevaluation concluded that the existing combustion system with modifications is BACT for control of NOx from the remelt furnace. The engineering study recommended modifications to the furnace and burner systems to minimize NOx emissions. In October 2003 and January 2004 Intalco conducted a series of six source tests to determine the emission rates for NOx, CO, and PM.

After completion of the modifications recommended by the engineering study and source testing of the modified system, Ecology will evaluate the data from source tests conducted on the modified system and issue a new order containing NOx, CO, and PM limits and monitoring requirements based on the source test data.

In accordance with WAC 173-400-171, public involvement was not deemed necessary and public notice was not made.

In relation to the above, the Department of Ecology, State of Washington, pursuant to RCW 70.94.152 and WAC 173-400-113, makes the following determinations:

1. The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC, Chapter 173–415 WAC, and Chapter 173-460 WAC.

2. The proposed project, if constructed and operated as herein required, will employ BACT for all pollutants not previously emitted or whose emissions would increase as a result of the new source or modification.

3. Allowable emissions from the proposed new source or modification will not contribute to a violation of any ambient air quality standard.

THEREFORE, IT IS ORDERED that the project, as described in the amended Notice of Construction application and more specifically detailed in plans, specifications and other information submitted to the Department of Ecology in reference thereto, is approved for construction, installation, and operation, provided that the following conditions are met:

1. Allowable emission limits and conditions for this consent order covering the Intalco remelt furnaces are as follows:

   a.) Intalco shall complete the modifications on the remelt furnace (recommended in the engineering study submitted to Ecology by Intalco on November 26, 2003) by August 01, 2004.

   b.) Carbon monoxide shall not exceed 100 ppm on a dry basis corrected to 3% oxygen from the remelt furnace stack.

   c.) Carbon monoxide shall not exceed 5.5 tons for any twelve month period, or 0.47 tons for any single month from the remelt furnace stack.

   d.) Particulate matter (PM) emissions shall not exceed 2.5 tons for any twelve month period, or 0.22 tons for any single month from the remelt furnace stack.

   e.) Particulate matter$_{10}$ (PM_{10} - particulate with a mean aerodynamic diameter of less than or equal to ten micrometers) emissions shall not exceed 1.5 tons for any twelve month period, or 0.13 tons for any single month from the remelt furnace stack.

   f.) Intalco has opted to report all PM as PM_{10} and to comply with the PM_{10} limit in Condition 1.e. Should Intalco decide to establish emission factors for PM and PM_{10} and to report PM and PM_{10} separately, Intalco shall develop a source test plan which describes how the emission factors will be derived. Intalco shall submit the source test plan to Ecology for review and approval. Intalco may use the Ecology approved emission factors to report separate emission rates for PM and PM_{10}. When reporting PM and PM_{10} derived from the approved emission factors, Intalco shall comply with the respective PM and PM_{10} limits in Conditions 1.d and 1.e.

   g.) Opacity shall not exceed:

   (1) an average of five percent for any sixty minute period and;
   (2) twenty percent for more than three minutes in any one hour period, or
   (3) five percent for more than six consecutive minutes in any sixty minute period.

   h.) The interim limit of natural gas consumption shall not exceed 75,000 MMBtu/year from the remelt furnace.

i.) The interim limit on the amount of aluminum scrap remelted in the remelt furnace shall not exceed 45,640 tons per year.

2. NOx levels shall be controlled by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions 1. h and 1.i) until new NOx limits are established. New NOx limits and monitoring requirements will be determined based on the results of performance testing on the modified system and will be established in a new order issued by Ecology.

3. CO levels shall be controlled by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions 1. h and 1.i) until new limits are established. New CO limits and monitoring requirements will be determined based on the results of performance testing on the modified system and will be established in a new order issued by Ecology.

4. PM and PM_{10} levels shall be controlled by limiting natural gas consumption and the quantities of aluminum scrap remelted (per Conditions 1. h and 1.i) until new limits are established. PM_{10} limits (all PM will be reported as PM_{10}) and monitoring requirements will be determined based on the results of performance testing on the modified system and will be established in a new order issued by Ecology.

5. Intalco shall determine and demonstrate compliance with opacity limits in condition 1.g by:

a. Conducting weekly visible emission tests using EPA RM 9 per 40 CFR Part 60 until the COM is operational.

b. Increasing the opacity monitoring (conducted per Condition 5.a) to three times per week if the opacity limits in Condition 1.g are exceeded more than once in any 7 day period,

c. Installing a continuous opacity monitor (COM) on the remelt furnace stack by August 01, 2004.

d. Maintaining the COM in compliance with EPA Performance Specification 1 per 40 CFR Part 60, Appendix B. If Intalco shuts down all casthouse operations prior to August 01, 2004, Intalco shall install the COM before startup of remelt operations.

e. Taking corrective action if opacity exceeds any of the opacity limits in Condition 1.g. Corrective actions include but are not limited to: (a) adjusting flue residence time by adjusting charge door height;

(b) reducing firing rate; (c) re-analyzing scrap for oil content; and
(d) reviewing and modifying cast house work practices. Intalco shall record the date and time of each corrective action taken, the source type being charged

during the exceedance, and the actions taken to prevent future occurrences.

f. Reporting all opacity exceedances, noncompliance with the requirements defined in 5.a-5.e above, and the corrective actions taken in the respective monthly air monitoring report submitted to Ecology.

6. Intalco shall monitor, electronically record, and maintain records of the total number of cubic feet of natural gas consumed by the remelt furnace each month. Intalco shall provide the electronic records to Ecology upon request.

7. Intalco shall monitor, record electronically, and maintain records of the total number of tons of aluminum produced by the remelt furnace per month. Intalco shall provide the electronic records to Ecology upon request.

8. Intalco shall conduct a weekly functional integrity inspection of the remelt furnace system that, at a minimum, includes a visual check for visible emissions. Intalco shall record the observations of the parameters assessed in the inspection log. Any time visible emissions are present, Intalco shall take corrective action as soon as practical but within 24 hours. Intalco shall record the results of corrective actions taken in the inspection log.

9. Intalco shall develop an operation and maintenance (O&M) manual for the remelt furnace by October 29, 2004 for all associated equipment and work practices that may affect emissions of pollutants to the atmosphere. Copies of the manual shall be available for review by Ecology. The O&M manual shall ensure that, at all times, including periods of abnormal operation and upset, Intalco personnel, to the extent practicable, maintain the remelt furnace, and operate and maintain air pollution control equipment associated with the remelt furnace in a manner consistent with good air pollution control practice. Emissions that result from a failure to follow the requirements of the manual may be considered proof that the equipment was not properly operated and maintained. Intalco shall follow the O&M manual and update the manual as necessary to include any changes in operation of the remelt furnace and activities related to its operation.

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

Nothing in this Order shall be construed to relieve Intalco of its obligations under any applicable state, local, or federal laws or regulations.

This authorization may be modified, suspended or revoked in whole or part for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization;
2. Misrepresentation or failure to disclose fully all relevant facts in the NOC Application.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provision of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

Appeal Process

This Order may be appealed. Your appeal must be filed with the Washington Pollution Control Hearings Board (PCHB) within 30 days of receipt of this Order.

The notice of appeal, to the PCHB, shall include, as attachments, a copy of this NOC Approval order, a copy of the NOC application, and any additional information submitted to Ecology in support of the application. At the same time, a copy of the notice of appeal, without attachments, must be sent to the Department of Ecology. The addresses are listed below

The Pollution Control Hearings Board	Carol Kraege
P.O. Box 40903	Ecology
Olympia, Washington 98504-0903	Industrial Section Manager
	P.O. Box 47706
	Olympia, Washington 98504-7706

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with the provisions of Chapter 43.21B RCW.

DATED this 14th day of April, 2004 at Olympia, Washington

Prepared and Reviewed by:

Judith A. Schwieters, PE
Industrial Section

Approved by:

Carol Kraege, PE
Section Supervisor,
Industrial Section

DEPARTMENT OF ECOLOGY

IN THE MATTER OF APPROVING THE FLUORIDE AMBIENT AIR AND FORAGE CONTENT MONITORING PLAN AT THE INTALCO ALUMINUM CORPORATION IN FERNDALE, WASHINGTON	)))))	ORDER NO. DE 03AQIS-5550

To: Intalco Aluminum Corporation (Intalco)
Post Office Box 937
Ferndale, Washington 98248

RCW 70.94.331(1) and RCW 70.94.141(3) provide the Department of Ecology the authority to issue orders to enforce the purposes of the Washington Clean Air Act. WAC 173-415-060 requires that each primary aluminum smelter conduct routine monitoring of ambient air in accordance with a program that has been approved by Ecology.

Intalco submitted ambient modeling analyses of HF emissions to Ecology. These analyses were used to predict the areas where maximum HF concentrations will likely occur and thus where ambient HF monitor and forage sampling locations should be sited. Intalco submitted a report titled "Dispersion Modeling Analysis of HF Emissions" in April 1995 and a more refined modeling analysis of fluoride emissions as part of the PSD application in September 2002.

Both modeling studies determined that the point of maximum HF concentration (0.846 µg/m3 average for any 30 day period) is located 0.62 miles from the center of the potlines along a line 30 degrees east of due north at latitude 48 degrees 50' 58"and longitude 122 degrees 42' 21".

Maximum predicted HF concentrations in the air in forage areas were presented in the September 2002 PSD Application submitted to Ecology and are summarized in Table 1 below and compared to the ambient standards in WAC 173-481-110 (2) (a) through (e).

Table 1: Maximum predicted HF concentrations

AVERAGING PERIOD	MAXIMUM PREDICTED IMPACT ($\mu g/m^3$)	HF STANDARD ($\mu g/m^3$)
12-hour	3.0	3.7
24-hour	1.4	2.9
7-day	0.5	1.7
30-day	0.3	0.84
8-month	0.2	0.5

Intalco has been monitoring ambient fluoride continuously at three monitoring stations, identified as stations 1, 2, and 5, since 1993. The monitoring data is summarized in Table 2 below. The average ambient 24-hour period standard is 2.9 µg/m3 (WAC 173-481-110 (2) (b)). Intalco has had no exceedances of the ambient standard over the 10 year monitoring period. The highest ambient fluoride concentrations occurred in 1998 and 2002. The concentrations reported in 2002 were higher than normal due to startup of the plant in May 2002. The highest average for any 24 hour period, 0.46 µg/m3, is less than 16% of the standard.

TABLE 2: INTALCO'S AMBIENT FLOURIDE MONITORING RESULTS FOR CONTINUOUS 24-HOUR MONITORING (The average ambient standard for any 24-hour period is 2.9 µg/m3)						
	STATION 1		STATION 2		STATION 5	
YEAR	HIGHEST AVERAGE	HIGHEST MAXIMUM	HIGHEST AVERAGE	HIGHEST MAXIMUM	HIGHEST AVERAGE	HIGHEST MAXIMUM
1993	0.30	0.67	0.28	0.43	0.33	1.29
1994	<0.08	0.29	<0.11	0.7	0.14	0.63
1995	0.20	0.6	0.19	0.71	<0.34	1.09
1996	<0.23	1.13	<0.21	0.81	0.26	1.11
1997	<0.24	1.35	<0.11	0.65	<0.28	1.89
1998	<0.16	1.28	<0.8	0.39	<0.52	3.82
1999	<0.20	1.55	<0.17	0.68	0.28	0.84
2000	0.14	0.64	0.09	0.29	<0.19	0.57
2001	<0.7	1.48	<0.7	0.42	<0.15	0.82
2002	0.33	1.95	0.46	2.2	0.43	1.28
2003	0.09	0.29	<0.09	0.32	<0.22	0.8

Intalco has also been monitoring fluoride content in forage during the March 1 through October 31 growing season at three monitoring stations since 1993. The average 12-consecutive month forage standard is 40 ppm (WAC 173-481-100 (2) (a)) . The results are summarized in Table 3 below. Intalco has had no exceedances of the ambient standard over this 10 year period.

TABLE 3: AVERAGE FLUORIDE FORAGE CONTENT OVER THE APRIL THROUGH OCTOBER GROWING SEASON (ppm)

The average standard is 40 ppm for any 12 consecutive months

Year	Location 1 (1.3 miles SE of plant center)	Location 2 (0.9 miles E of plant center)	Location 3 (0.9 miles NNW of plant center)
1993	15	16	20
1994	16	30	24
1995	20	16	15
1996	36	37	32
1997	12	15	15
1998	25	37	28
1999	14	21	17
2000	11	13	18
2001	6	12	9
2002	31	32	28
2003			

Ecology has reviewed Intalco's fluoride ambient air and forage content monitoring results and the predicted maximum historical HF concentrations. For the reasons described above and in accordance with RCW 70.94.141(3), IT IS ORDERED that Intalco take the following actions:

1. Intalco shall continue to monitor ambient fluoride at the monitoring station identified as station #2 continuously

for 24 hours a day every day of the year in accordance with the Fluoride Ambient Monitoring procedures outlined in Intalco's approved Air Monitoring Plan. Station #2 is located at Latitude 48 degrees 50 minutes 44 seconds and Longitude 122 degrees 41 minutes 35 seconds (approximately 1.05 miles East Northeast of the center of the potlines). Intalco will keep stations 1 and 5 in place. Ambient fluoride monitoring is not required at stations 1 and 5.

2. Intalco shall not exceed the ambient fluoride standards in WAC 173-481-110 (2) (a) through (e) at this station.

3. Intalco shall continue monitoring ambient fluoride at the ambient monitoring station for a minimum period of 60 days after a shutdown of all potlines.

4. Intalco shall report the data collected from the ambient monitoring station in the respective monthly air reports submitted to Ecology. Intalco shall report the ambient data in a format that will allow a comparison of the data to the ambient fluoride standards in WAC 173-481-110 (2)(a) through 2(e).

5. Intalco shall determine the mass of gaseous fluoride emitted per day (pounds/day) from the facility (averaged on a monthly basis). Intalco shall report the average pounds of gaseous fluoride emitted from the facility per day in the respective monthly air monitoring report submitted to Ecology.

6. Intalco shall follow the approved forage sampling and analysis plan in Intalco's approved Air Monitoring Plan.

7. Intalco shall continue forage monitoring (per Condition 6) through the end of the growing season if a shutdown occurs during the growing season.

8. Intalco shall report the forage data collected (in accordance with the Forage Sampling Plan in Intalco's approved Air Monitoring Plan) in the respective monthly air monitoring reports submitted to Ecology. Intalco shall report the data in a format that will allow a comparison of the forage data to the forage standards in WAC 173-481-100 (2)(a) through 2(c).

9. Intalco shall maintain electronic records of the data collected for compliance with the conditions above for a minimum of 5 years.

10. Ecology may impose additional requirements if Intalco's gaseous fluoride or forage monitoring results exceed the standards in WAC 173-481.

11. Intalco shall develop and submit to Ecology a draft Air Monitoring Plan (Plan) containing the procedures for ambient fluoride and fluoride forage monitoring outlined in the conditions above for review within 60 days of issuance of this order. Ecology shall provide comment and approve an ambient fluoride and fluoride forage monitoring plan that meets the requirements of this order within 60 days of receipt of the Plan. Intalco shall implement all requirements of the Plan within 60 days of Ecology's approval. Prior to implementing any changes to the procedures outlined in the approved Plan, Intalco shall submit a written request and receive Ecology's approval for the changes.

This order presents only one part of Intalco's approved air monitoring program. The approval implied in this order extends only to the location of the fluoride ambient air and forage monitoring stations and the respective monitoring, recordkeeping and reporting requirements related to them. This order does not provide approval for any other component of the air monitoring program.

The proposed project, if constructed and operated as herein required, will be in accordance with applicable rules and regulations, as set forth in Chapter 173-400 WAC, Chapter 173–415 WAC, Chapter 173-460 WAC, and Chapter 173-481 WAC.

The Department of Ecology made a determination of nonsignificance (on October 23, 2003), in accordance with the State Environmental Policy Act rules (Chapter 197-11 WAC). In accordance with WAC 173-400-171, public involvement was not deemed necessary, and public notice was not made.

Failure to comply with this order may result in the issuance of civil penalties or other actions, whether administrative

or judicial, to enforce the terms of this Order.

Nothing in this approval shall be construed to relieve Intalco of its obligations under any applicable state, local, or federal laws or regulations.

This authorization may be modified, suspended or revoked in whole or part for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this authorization;

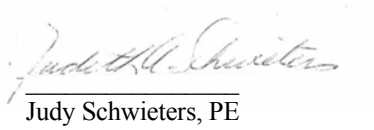
2. Obtaining this authorization by misrepresentation or failure to disclose fully all relevant facts.

The provisions of this authorization are severable and, if any provision of this authorization, or application of any provision of this authorization to any circumstance, is held invalid, the application of such provision to their circumstances, and the remainder of this authorization, shall not be affected thereby.

Any person feeling aggrieved by this Order may obtain review thereof by application, within 30 days of the receipt of this order, for those conditions only, to the Washington Pollution Control Hearings Board, P.O. Box 40903, Olympia, Washington 98504-0903. Concurrently, a copy of the application must also be sent to the Department of Ecology, Industrial Section, P.O. Box 47706, Olympia, Washington 98504-7706. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder

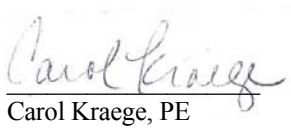
ISSUED and DATED this 23rd day of October, 2003 at Lacey, Washington.

Prepared by:



Judy Schwieters, PE
Industrial Section

Approved by:



Carol Kraege, PE
Section Supervisor,
Industrial Section

DETERMINATION OF NONSIGNIFICANCE

Description of proposal: Ecology has issued Order No. DE 03AQIS-5550. This order establishes the ambient air and forage monitoring requirements for fluoride emissions from the Alcoa Intalco Works Corporation (Intalco) facility located near Ferndale Washington.

Proponent: Alcoa Intalco Works Corporation

Location of proposal, including street address if any: Alcoa Intalco Works Corporation, P.O. Box 937, 405 Mountain View Road, Ferndale, Washington 98248.

Lead agency: Washington State Department of Ecology

The lead agency for this proposal has determined that the proposed project does not have a probable significant impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

☒ **There is no comment period for this DNS.**

☐ **This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 15 days from the date below.**

Responsible official:

Position/title: Carol Kraege, Supervisor, Industrial Section

Address: Department of Ecology, Industrial Section, P.O. Box 47706, Olympia, WA 98504-7706. **Phone:** (360) 407-6906

Date 10/23/2003 **Signature** Carol Kraege